Hongwei Qu

Assistant Professor
Department of Electrical and Computer Engineering
Oakland University
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Rochester, Michigan 48309
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Professional Experience

- 08/2006 ~ present Assistant Professor, Department of Electrical and Computer Engineering, Oakland University, Rochester, Michigan.
- 01/2003 ~ 07/2006 Graduate Research Assistant, Department of Electrical Engineering, University of Florida, Gainesville, Florida.
- 09/2000 ~ 08/2002 Graduate Research Assistant, Physics Department, Florida International University, Miami, Florida.
- 07/1999 ~ 08/2000 Associate Professor, Department of Electrical Engineering, Tianjin University, Tianjin, China.
- 05/1993 ~ 07/1999 Assistant Professor, Department of Electrical Engineering, Tianjin University, Tianjin, China.
- 09/1990 ~ 05/1993 Graduate Research Assistant, Department of Electrical Engineering, Tianjin University, Tianjin, China.
- 09/1988 ~ 07/1990 Executive Director of R&D Section, Luoyang Power Electronics Company, Henan, China.

Education

- Ph.D. in Electrical Engineering, August 2006, University of Florida, Gainesville, Florida.

  Thesis: *CMOS-MEMS integrated Inertial Sensors and Electrostatic Micromirrors.*
- M.S. in Physics, August 2002, Florida International University, Miami, Florida.

  Thesis: *The Structure and Electrical Property of Copolymer PVDF (TrFE).*
- M.S. in Electrical Engineering, March 1993, Tianjin University, Tianjin, China.

  Thesis: *High temperature pressure sensor with SOI structure.*
- B.E. in Electrical Engineering, July 1988, Tianjin University, Tianjin, China.

Publications

Referred Journal Papers

1. **Hongwei Qu**, Deyou Fang and Huikai Xie, "A Monolithic CMOS-MEMS 3-Axis Accelerometer with a Low-Noise, Low-Power, Dual-Chopper Amplifier", *IEEE Sensors Journal*, under review.

2. **Hongwei Qu** and Huikai Xie, "Process Development for CMOS-MEMS Sensors with Robust Isolated Bulk Silicon Microstructures", *Journal of Micro-Electro-Mechanical Systems*, Vol. **16** (2007), 5, pp. 1152-1161.
3. **Hongwei Qu,** Deyou Fang and Huikai Xie, "Microfabrication and Characterization of an Integrated 3-Axis CMOS-MEMS Accelerometer", *Journal of Sensors and Transducers*, Vol. **83**, 10, pp. 60-67.
4. Shane T. Todd, Ankur Jain, **Hongwei Qu** and Huikai Xie, "A Multi-Degree-of-Freedom Micromirror Utilizing Inverted-Series-Connected Bimorph Actuators," *Journal of Optics A: Pure and Applied Optics,* Vol. **8** (2006), pp. 352-359.
5. Anwar Sadat, **Hongwei Qu**, Chuanzhao Yu, Jiann S. Yuan, Huikai Xie, "Low Power CMOS Wireless MEMS Motion Sensor for Physiological Activity Monitoring", *IEEE Transactions on Circuit and Systems-I*, Vol. **52**, No. 12, (2005), pp. 2539-2551.
6. Ankur Jain, **Hongwei Qu**, Shane Todd, Huikai Xie, "A Thermal Bimorph Micromirror with Large Bi-Directional and Vertical Actuation", *Sensors and Actuators A*, Vol. **122**, (2005), pp. 9-15.
7. Lei Cai, **Hongwei Qu**, Chenxi Lu, S. Ducharme, P.A. Dowben and Jiandi Zhang, "Surface Structure of Ultrathin Copolymer Films of Ferroelectric Vinylidene Fluoride (70%) with Trifluoroethylene (30%) on Graphite", *Physical Review B*, **70**, (2004), pp. 155411-155415.
8. Chenxi Lu, Jiandi Zhang, R. Jin, **Hongwei Qu**, J. He, D. Mandrus, Ku-Ding Tsuei, Chuan-Tze Tzeng, Li-Cheng Lin, and E. W. Plummer, "An Imperfection-Driven Phase Transition at 120 K in $Cd_2Re_2O_7$", *Physical. Review B*, **70**, (2004), pp. 092506-092509.
9. **Hongwei Qu**, Wei Yao, Tomas Garcia, Jiandi Zhang, S. Ducharme, P. A. Dowben, A. V. Sorokin, and V. M. Fridkin, "Microscopic Visualization of Ordered Structure and Dipole Reorientation in the Ultra-Thin P(VDF-TrFE) Film by STM", *Applied Physics Letter*, Vol. **82**, (2003), pp. 4322-4324.
10. **Hongwei Qu**, Suying Yao, Weixin Zhang, Ganru Mao, Wei Zhang, "Polysilicon Pressure Sensor Integrated with Temperature Compensating Arrays", *Chinese Journal of Instruments*, Vol. **23**, No. 2, (2002), pp. 156-160. (In Chinese)
11. **Hongwei Qu,** Ganru Mao, Weixin Zhang, Suying Yao, "Temperature Characterization of Semiconductor Pressure Sensors", Journal of Tianjin University, Vol. **33**, No. 2, (2000), pp. 134-138. (In Chinese)
12. Suying Yao, **Hongwei Qu**, Ganru Mao, Weixin Zhang, "Stress Distribution in Polysilicon Pressure Sensor with Twin-isle Membrane Structure", *Chinese Journal of Electronics*. Vol. **37**, No. 11, (1999), pp. 68-71. (In Chinese)
13. Rong Zhang, **Hongwei Qu**, Yongping Wang, Fulan Yan, Jinbiao Cui, Liping Tian, Weixin Zhang, "A High-temperature Semiconductor Sensor", *Chinese Journal of Microelectronics,* Vol. **28**, No.6, (1998), pp.437-440. (In Chinese)
14. **Hongwei Qu**, Suying Yao, Ganru Mao, Weixin Zhang, Rong Zhang, "A High Temperature Pressure Sensor with Improved Temperature Characteristics", *Chinese Journal of Microelectronics*, Vol. **27**, No.5, (1997), pp.326-330. (In Chinese)
15. Weixin Zhang, **Hongwei Qu**, Ganru Mao, Suying Yao, Jianwen Li, "A MOS Integrated Pressure Sensor", *Chinese Journal of Microelectronics*, Vol. **26**. No.8, (1996), pp. 435-439. (In Chinese)
16. Weixin Zhang, Ganru Mao, **Hongwei Qu**, Suying Yao, Jianwen Li, "A Novel Integrated Pressure Sensor", *Chinese Journal of Semiconductor*, Vol. **17**, No. 6, (1996), pp. 435-439. (In Chinese)
17. Ganru Mao, Suying Yao, **Hongwei Qu**, Jianwen Li, "Study on An MOS Integrated Magnetic Sensor", *Chinese Journal of Measurement and System Control*, Vol. **11**, No. 4, (1996), pp.26-40. (In Chinese)

Papers in Conference Proceedings

1. **Hongwei Qu**, Deyou Fang and Huikai Xie, "An Integrated Fully-Differential CMOS-MEMS Z-axis Accelerometer Utilizing a Torsional Suspension", to be presented at IEEE NEMS 2008 Conference, Sanya, Hainan, China, January 6-9, 2008.
2. **Hongwei Qu**, Deyou Fang and Huikai Xie, "Microfabrication and Characterization of An Integrated CMOS-MEMS 3-Axis Accelerometer", Proceedings of Nanotech 2007, May 20-24, 2007, San Jose, California, Vol. 3, pp.13-16.
3. **Hongwei Qu**, Deyou Fang and Huikai Xie, "A CMOS-MEMS 3-Axis Accelerometer with Low-Power, Low-Noise, Dual-Chopper Amplifier", Proceedings of Hilton Head 2006: *Solid-State Sensor, Actuator and Microsystems Workshop*, June 4-8, 2006, Hilton Head Island, SC, pp. 224-227.
4. Deyou Fang, **Hongwei Qu** and Huikai Xie, "A 1mW Dual-Chopper Amplifier for a 50 $\mu g/\sqrt{Hz}$ CMOS-MEMS Capacitive Accelerometer", Technical Digest of *2006 Symposium on VLSI Circuits*, June 15-17, 2006, Honolulu, Hawaii, pp. 59-60.
5. Cheng-Kuan Lu, **Hongwei Qu**, Darrin Young and Huikai Xie, "CMOS MEMS Accelerometer for Long-Term *in vivo* Real-time Small Animal Biological Monitoring", *IEEE Sensors 2005*, October 31-November 3, 2005, Irvine, California, pp. 1377-1380.
6. Shane Todd, Ankur Jain, **Hongwei Qu** and Huikai Xie, "A 3-D Micromirror Utilizing Inverting-Series-Connected Electrothermal Bimorph Actuators for Piston and Tilt Motion," *2005 IEEE/LEOS International Conference on Optical MEMS*, August 1-4, 2005, Oulu, Finland, pp. 27-28.
7. **Hongwei Qu**, Deyou Fang, Huikai Xie, "A Single-crystal Silicon 3-axis CMOS-MEMS Accelerometer", *IEEE Sensors 2004*, October 24-27, 2004, Vienna, Austria, pp. 661-664.
8. Ankur Jain, **Hongwei Qu**, Shane Todd, Huikai Xie, "Electrothermal SCS Micromirror with Large-Vertical-Displacement Actuation", Hilton Head 2004: *Solid-State Sensor, Actuator and Microsystems Workshop*, pp. 228-231, June 6-10, 2004, Hilton Head Island, South Carolina, pp. 228-231.
9. **Hongwei Qu**, Deyou Fang, Anwar Sadat, Jiann S. Yuan, Huikai Xie, "High Resolution Integrated Micro-gyroscope for Space Applications", *41st Space Congress*, April 27-30, 2004, Cape Canaveral, Florida.
10. **Hongwei Qu**, Wei Yao, Jiandi Zhang, Stephen Ducharme, Peter A. Dowben, "Polarization of the Ultra-Thin P(VDF-TrFE) Film", American Physical Society Annual Meeting, March 17-22, 2002, Indianapolis, Indiana.
11. **Hongwei Qu**, Suying Yao, Ganru Mao, Weixin Zhang, "Temperature Coefficient Compensation of Polysilicon Pressure Sensor", *IEEE ICSICT'98*, October 21-23, 1998, Beijing, China.
12. Suying Yao, **Hongwei Qu**, Ganru Mao, Weixin Zhang, Yang Bai, "Finite Elements Analysis of Stress in multi-layer membrane", *IEEE ICSICT'98*, October 21-23, 1998, Beijing, China.
13. Ganru Mao, Suying Yao, **Hongwei Qu**, Baiying Yu, Weixin Zhang, "Compensating Methods of Corner Undercutting in Silicon Micromachining", *SPIE's Symposium on Micromachining and Microfabrication*, September 29-30, 1997, Austin, TX.

Conference Abstracts Presentations

1. Hongwei Qu, Mohd Haris, "Development of Post-CMOS Microfabrication Process for MEMS Inertial Sensors", to be presented on the 12th Annual Michigan Space Grant Consortium Conference, Ann Arbor, MI, Oct. 20, 2007.
2. Hongwei Qu, Huikai Xie, "CMOS-MEMS Inertial Sensors and Their Applications", 2007 CMOS Emerging Technology Workshop, Whistler, BC Canada, July 10-13, 2007.

3. Hongwei Qu, "Development of Plasma-Etching Based Microfabrication Process for CMOS-MEMS", 1st Michigan Alliance for Nano-Science and Engineering Annual Symposium, Oakland University, Rochester, MI, May 14, 2007.

Main Academic and Industrial Projects Involved

1. *Integrated Inertial Sensor Using CMOS-MEMS Technology*, Department of Electrical and Computer Engineering, University of Florida, funded by **NASA UF/UCF Space Research Initiative. Research Assistant**.
2. *CMOS-MEMS Micro-mirror for Optical Coherence Tomography (OCT) Applications*, Department of Electrical and Computer Engineering, University of Florida, funded by **National Science Foundation. Research Assistant**.
3. *A CMOS-MEMS Integrated Gyroscope,* Department of Electrical and Computer Engineering, University of Florida, funded by **NASA UCF/UF Space Research Initiative. Research Assistant**.
4. *Nano-Structure and Electrical Properties of Copolymer PVDF Thin Film*, Physics Department, Florida International University, funded by **Department of Energy (DOE). Research Assistant**.
5. *High Temperature Polysilicon Pressure Sensor*, Electrical Engineering Department, Tianjin University, funded by **China National Science Foundation (CNSF)**. 1996-1998. **Principle Investigator (P. I.)**.
6. *The Improvement of the Temperature Characteristics of Polysilicon Pressure Sensor*, Electrical Engineering Department, Tianjin University, funded by **China National Science Foundation (CNSF)**. 1998-2000. **Co-P. I.**.
7. *Polysilicon Pressure Sensor Used in Oil Industry*, Electrical Engineering Department, Tianjin University, funded by **Tianjin Municipal Natural Science Foundation (TMNSF).** 1998-2000. **P. I.**
8. *High Sensitivity Silicon Optical Detector,* Electrical Engineering Department, Tianjin University, funded by **Tianjin Global Magnetic Card Company**. 1998-1999. **Co-P. I.**.
9. *Research on Flip-Flop Pressure Sensor with Digital Output*, Electrical Engineering Department, Tianjin University, funded by **Tianjin Municipal Natural Science Foundation (TMNSF).** 1995-1997. **P. I.**.
10. *MOS Integrated Magnetic Sensor*, Electrical Engineering Department, Tianjin University, funded by **Tianjin Municipal Natural Science Foundation (TMNSF).** 1995-1996. **Co-P. I.**.

Patent Disclosures

1. *Microelectromechanical Vertically-elevated Electrostatic Combdrive Actuators and Fabrication Process.* Disclosed by the Office of Technology Licensing at the University of Florida, #11991. Patentability passed.

Awards

- Marquis Who Is Who in Engineering, 2007-2008.
- Excellence in Teaching Award, Tianjin University, 1999.
- Outstanding Advisor of Senior Design, Tianjin University, 1998.

Professional Affiliations

- Member of Institute of Electrical and Electronics Engineers, 2006-present
- Student member of IEEE, 2003-2005.
- Student member of American Physical Society, 2000-2003.

- Member of Chinese Society of Electronics, 1995-2000.

Professional Services

- NSF Small Business Innovation Research (SBIR) Reviewer
- Reviewer of journals and conferences
  - ***Nuclear Instruments and Methods in Physics Research A*** (Elsevier)
  - ***IEEE Sensors Journal***
  - ***Journal of Micro-lithography, MEMS and MOEMS*** (SPIE)
  - ***IEEE NEMS Conference***

ANDREW RUSEK

Ph.D. Electrical Engineering, Senior Member of IEEE

RESUME

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Phone: (248) 370-2181 (office), Fax: (248) 370-4633

E-mail Address: rusek@oakland.edu

DEGREE INFORMATION

M.S.Electrical Engineering, Warsaw Technical University, POLAND 1962,
Specialization: Electronic Communication Systems, Electronic Circuits,
Ph.D. Electrical Engineering, Warsaw Technical University, POLAND 1972,
Post-doctoral research in sampling oscillography at Aston University in Birmingham, England, 1973-74.

PROFESSIONAL AREAS OF TEACHING AND RESEARCH INTEREST

Communication Systems, GPS, and Electromagnetic Compatibility (current research, publications)
Electronic Instrumentation and Measurements (teaching, publications, research)
Electromagnetics, Microwaves (teaching, research)
Fast Pulse and High Frequency Systems (teaching, publications, and research)
Electronic Circuit Design (teaching, publications and research)

POSITIONS HELD

Head of Electronic Circuits Laboratory, 1975-77, Warsaw Technical University
Head of Remote Sensing Laboratory at Space Research Center of Polish Academy of Sciences, 1977-79, Polish Technical Representative to Intercosmos (East European Space Agency), 1978-79.
Chair of Control Engineering Department at Higher Institute of Electronics, Malta and Libya 1981-1984, on leave from Space Research Center of Polish Academy of Sciences (1979-84),
Acting Chair of Electrical and Systems Engineering Department, Oakland University, USA, January 1987-December 1987, May 1991-August 1991.

EMPLOYMENT RECORD

Full Time Employment

August 1990-Present	Professor, Oakland University
August 1984-August 1990	Visiting Associate and Associate Professor, Oakland University,
November 1961-August 1984	Laboratory Engineer, Research Associate, Lecturer, Senior Lecturer, Assistant Professor at Warsaw Technical University and Space Research Center of Polish Academy of Sciences, Poland (1979-1984, Assistant Professor at Higher Institute of Electronics, Malta, Libya, on leave from Space Research Center of Polish Academy of Sciences)

Recent Part-Time Employment

September 1989-July 1996 Wayne State University, Detroit, Michigan (instructor and Associate Graduate School Faculty), General Motors (instructor), Edith Cowan University, South Western Australia (visiting professor), Michigan Technological University (adjunct professor).

SCIENTIFIC, EDUCATIONAL AWARDS, RECOGNITIONS

1963-1984 Awarded by the President of Warsaw Technical University, by the Polish Ministry of Science and Technology, Research Award for achievements of Ph.D. research, awarded by the Polish Ministry of Science and Technology for achievements in fast pulse and sampling oscillography industrial projects, awarded by the Director of the Space Research Center of Polish Academy of Sciences for research in remote sensing.

1996 Oakland University Senate Teaching and Learning Committee Award for the Best Teacher of the Year
1997 State of Michigan Recognition for Education.
1998 Oakland University, Faculty Recognition Award for Teaching.
1999 School of Engineering and Computer Science, John D. and Dorotha J. Withrow Teaching Excellence Award.
2000 Oakland University Board of Trustees Recognition
2002 Biography published in 7th Annual Edition of Who's Who Among America's Teachers
2004 Biography published in 8th Annual Edition of Who's Who Among America's Teachers
2005 Biography published in 9th Annual Edition of Who's Who Among America's Teachers
2006 Biography published in 9th Annual Edition of Who's Who Among America's Teachers

PATENTS

1976 (together with J. H. Baranowski) Patent #76305, sampling closed loop system, Poland

TEACHING (before 1984)

Warsaw Technical University (1961-1977 Poland): Participation in teaching of Graduate and Undergraduate levels Electronic Circuit Analysis and Design, Measurements-Lectures and Laboratories Analog Electronic Circuits, Pulse Electronic Circuits, Fast Pulse Circuits and Systems, 1973-1974 Pulse and Digital Electronic Circuits and Systems, participation in teaching graduate courses at Aston University in Birmingham, England, Higher Institute of Electronics (1979-1984 Malta, Libya): Instrumentation and Measurements, Control Engineering, Digital Control Systems, Microprocessors, Communication Systems, Electronic Circuit Design.

Supervision of MSc thesis: three to four thesis per year,
starting from 1965

Oakland University, USA (1984-Present)

EGR101 Introduction to Engineering
EE222 Introduction to Electrical Circuits
EE326 Electronic Circuit Design
EE345 Introduction to Electromagnetics
EE378 Digital Circuit and System Design
ECE384 Electronic Materials and Devices
EE426 Advanced Electronics
EE437 Communication Electronics
EE525 Measurement and Instrumentation (graduate course)
EE545 Electromagnetics Engineering (graduate course)
EE625 Analog Integrated Circuit Design (graduate course)
ECE527 High Frequency Electronics (graduate course)
EE491 Senior Design Project
EE490 Senior Projects
EE695 Graduate Projects
ECE 534 Digital Communication Systems (graduate course)
ECE 546 Introduction to Electromagnetic Compatibility (graduate course in preparation)

Detroit Area Pre-engineering College Program Courses (DAPCEP) (for minorities)
Senior Projects, Independent Studies, Master Projects and Thesis, supervision of Ph.D. projects and dissertations, especially in microwave and HF electronic circuit areas, last topic of the Ph.D. dissertation: Use of Bayesian Statistics to Optimize Radar Threshold Selection in a Clutter or Jamming Environment, by Ronald. C. Colgin, from Hughes Aircraft Company.
Member of 10 doctoral committees

External Courses (USA)

Wayne State University (1989-1994)
ECE470 Introduction to Communication Systems
ECE570 Analog and Digital Communication Systems (graduate course)

General Motors (1990-1996)
Digital Circuits and System Design (live course taught at General Motors)
Measurement and Instrumentation (graduate course), live course taught 9 times at General Motors)
Measurement and Instrumentation, undergraduate course (taught on behalf of Michigan Technological University, 1993-1996, twice per academic year)

DaimlerChrysler (2006-2007),
Two engineering training courses.

OAKLAND UNIVERSITY SERVICES

1. Committee on Academic Standing (CAS), Committee on Instruction, 1984-87 member, 1988 Chairman
2. Ph. D. Advisory Committee in Electrical Engineering 1986-Present
3. School of Engineering Executive Committee, member 1991-1993
4. University Committee on Appointments and Promotions (FRPC) 1989-1992, 1996
5. Graduate Forum, member, 1987-1988
6. School of Engineering Committee on Appointments and Promotions, member (1992-93), Chair (1993-94)
7. Dean Search Committee, member 1993
8. Department Graduate Curriculum Committee, 1993-1999
9. Instrumentation Committee, 1992-1998
10. Member of the Review Committee to evaluate Chairman of the Electrical and Systems Engineering Department, 1994
11. Chair of the Review Committee to evaluate Chairman of the Computer Science and Engineering Department, 1995
12. Chair of the Tenure Review Committee, 1995
13. Graduate Student Association Advisor, 1995, 1996, 1997, 1998, 1999, 2000
14. Chair of the Review Committee to evaluate Chairman of the Mechanical Engineering Department, 1997
15. Member of the University Senate Teaching and Learning Committee, 1997
16. Member of the Departmental Undergraduate Curriculum Committee, 1998
17. Member of the Faculty Search Committee, 1998
18. Member of the OU Senate Committee on Assessment, 1998/1999
19. Member of OU Senate, 1999/2000
20. Member of OU Research Committee, 1999/2000
21. Member of OU International Cooperation Committee, 1999/2000
23. Member of Departmental Faculty Review Committee, 2001, 2002, 2003
24. Member of Departmental Chair Search Committee, 2002, 2003, 2004, 2005
25. Chair of Departmental Faculty Review Committee, C2 Review, 2002, 2003, 2004, 2005, 2006, 2007
26. Member of CAS, 2002, 2003, 2004, 2005
27. Member of OU International Cooperation Committee, 2003, 2004, 2005, 2006

28. School of Engineering Committee on Appointments and Promotions, member (2006-08),
29. Chair of the Departmental Undergraduate Curriculum Committee (2005-2006)
30. Member of the Departmental Undergraduate Curriculum Committee (2007-2008)

US GRANTS AND CONSULTING (PI- principal investigator, and CoPi- co-principal investigator)

Teaching and Learning Committee Grant, 1985, CO-PI
Research Fellowship from State Research Excellence and Economic Development Fund, 1986, 1995, 1998 (each fellowship for one semester), PI
General Dynamics grants 1987, 88, 89, 90 (total $70,000) Microwave and Millimeter Wave Reflectance Meter and Software Development for Microwave Absorbers, PI
National Communications Forum Conference Grants, 1987,88,89,90,91,92,93
Sonitrol Security Systems, consulting, 1987, 1988, PI
Easco-Sparcatron, consulting, Metal Processing Equipment, 1988, PI
Southfield Police, consulting, High Voltage Equipment, 1992-93, PI
Cunnigham & Cunnigham Law Firm, consulting, High Voltage Safety, 1991, 1992, PI
Beige Bag Software of Ann Arbor, consulting, circuit analysis software testing, 1992, 1993, PI
Brooks and Kushman, consulting, Telephone Voice Mail Systems, 1994, PI
DaimlerChrysler Corporation, Electromagnetic Compatibility Projects, grants, total $40,000, 1994, 1995, PI
Oakland University Foundation ($14,000), EMC Laboratory Grant, 1994, PI
Detroit Edison, Equipment Grant, $75,000 to develop Instrumentation Laboratory (with prof. N. Kheir), 1997.
Adronics, Inc. consulting in the area of vehicle receiving antennas, 1996, 1997, PI
Department of the Army TACOM, military vehicle battery program, $183,000; 1997, 1998, 1999, 2000, PI
DaimlerChrysler Corporation, development of EMC tests for vehicle CAN communication network, $51,116; 1998, 1999, PI.
Ford Motor Company, Grant of $300,000.00 to develop new course in Mechatronics, 1998, 1999, 2000, 2001 (with N. Kheir, M. Das, and K. C. Cheok)
DaimlerChrysler, Electromagnetics Compatibility Projects, $37,500.00; 2000, 2001, PI
TRW Company, CAN Busses in Automotive Applications, Tests and Modeling, $25,000.00; 2000, 2001, PI
Intelligent Data Bus Forum, Daisy-Chain CAN data bus modeling and parameter identification, $17,500.00; 2001, 2002, PI
Federal Aviation Agency, GPS Local Augmentation Station $400,000; 2003, 2004, 2005, 2006, CoPI
NSF, Acquisition of Automotive Antenna Measurement Instrumentation (AAMI), $400,000; 2005, 2006, 2007, 2008, CoPI
DaimlerChrysler, Engineering Training Program, $30,000.00 Co-PI, topic: Principles of Electromagnetic Compatibility

TRAINING AND FACULTY ENHANCEMENT PROGRAMS

1. Robotics in Industry, Workshop at Oakland University, 1986
2. National Science Foundation Workshop on Integrated Circuit Design, Michigan State University, 1990, fully supported by NSF.
3. National Science Foundation Workshop on Digital Logic Synthesis, Mississippi State University, 1993, fully supported by NSF.
4. Tektronix Technical Workshop on Digital Design Verification, 1994
5. Wayne Kerr Electromagnetic Compatibility Workshop, June 1995.
6. Naval Surface Warfare Center, Reverberation Test Methods Workshop, April 1997

OTHER SERVICES

Professional courses on electronic circuit design for engineers at Radio-Electronics Institute and Telecommunication Institute, Poland
Courses at Eaton Corporation, 1985, US
Courses for minorities within DAPCEP program, 1986, 1987, 1993, 1994, 1995, 1997, 1998 US (Detroit area high school minorities)
Senior Membership of IEEE
Membership of Tau Beta Pi
Membership of Eta Kappa Nu
Representative of IEEE Instrumentation and Measurements Society to Professional Activities Council for Engineers, 1987-1988
IEEE Transactions on Instrumentation and Measurement Reviewer
IEEE Transactions on Education, Reviewer
Membership of Editorial Staff of IEEE Transactions on Measurement and Instrumentation
External Examiner for Ph.D. Thesis at University of Western Australia, Center for Intelligent Information Processing Systems, Perth, Australia, 1993
External Examiner for Ph.D. Thesis at Periyar University, K.S. Rangasamy College of Technology, Tiruchengode – 637 – 209, Namakkal (Dt), Tamil Nadu, India, 2005
Nominated Judge of High School Project Contest, Detroit area, 1993, 1994, 1995, 1996, 1997, 1998, 2005, 2007
Reviewer of proposals of State of Michigan Research Fund, within Small Business Initiative Programs, 1992, 93, 94, 95, 96

INDUSTRIAL PROJECTS AND CONSULTING IN POLAND (1961-1979)

Member of high speed pulse technique research team led by Prof. J. H. Baranowski.
Participation in thirteen projects in sampling oscillography and fast pulse generation. The projects were the results of research supported by the following institutions:
Nuclear Research Institute (Poland), International Nuclear Institute (USSR), Ministry of Science, Higher Education and Technology (Poland), Institute of Semiconductor Devices (Poland), Warsaw Radio Factory, Warsaw Semiconductor Device Factory, Space Research Center of Polish Academy of Sciences, Institute of Geodesy and Cartography (Poland)
The research supported several professors, five engineers, more than ten graduate students each year, large group of Ph.D. projects.

Project	**Results**
Sampling Oscilloscope 180MHz (1962-1963)	participation in design, prototypes and 10 units produced for institutions listed above
Sampling Oscilloscope 350MHz(1963-1964)	as above
Pulse Generator rep. 1MHz, rise time less than 20ns (1964-1965)	participation in design Prototypes and 10 units produced yearly
Double Pulse Generator rep. 2MHz (1964-1965)	Principal investigator and designer Prototype and 5 units produced yearly
Sampling Oscilloscope Bandwidth 1000MHz	Participation Prototypes and 5 units produced (1967-1968) yearly

Dual Channel Sampling Oscilloscope	Participation Prototype and 5 units produced(1968-1970) yearly
1000MHz Sampling Plug-In for OS-150 Oscilloscope (1969-1971)	Participation Prototypes and preparation of industrial production, later manufactured until 1981 (publications, patent, awards)
Step Recovery Diode Parameter Tester (1970-1972)	Participation Prototypes
Nanosecond Pulse Generator rise time less than 0.5ns (1971-1972)	Principal investigator Prototypes, 2 units produced (results published in book)
Sampling Oscilloscope bandwidth 3000MHz	Participation prototypes and preparation of (1973-1977) factory production
Trigger Countdown 100-6000MHz (1974-1976)	Principal investigator Prototype, industrial models (publication)
Multispectral Radiometer for Visible Radiation (1977-1979)	Principal investigator prototypes
Star Tracker for USSR and West Germany Space Project: Gamma Radiation Telescope (1978-79)	Project coordinator (work done by Warsaw Tech. Univ.) until departure from Poland
Microprocessor Based Testing Equipment (1982-1984)	Principal investigator prototypes, Higher Institute of Electronics, Libya

PUBLICATIONS

Publications in Poland (1969 – 1983)

Rusek, A., Pulse Circuits, Chapter 7 of Radioengineering Professional Handbook, Technical Publishers, Warsaw, Poland 1969, 100 pages.

Rusek, A., Step Recovery Diodes in Pulse Shaping Circuits, Electronics Review, December 1969, pages 599-605, Poland.

Rusek, A., Switching Step Recovery Diodes p-n-n+ Type, Electronics, No.9, 1970, pages 349-352, Poland.

Rusek, A., Dynamic Characteristics of the Charge Storage Diodes, the paper published in the book Modern Semiconductor Materials and Devices,
Polish Science Publishers, 1972, pages 447-451.

Rusek, A., Measurements of Pulse Parameters of AXD 11, 12 Step Recovery Diodes, the paper published in the book Modern Semiconductor Materials and Devices, Polish Science Publishers, 1972, pages 469-473.

Rusek, A., at al., Wideband Sampling Unit type OS-150-6 for Oscilloscope OS-150, Electronic Instrument Review, January-March 1972, Warsaw, Poland, total 50 pages.

Rusek, A., Wideband Sampling Oscillography, Chapters 4 and 6 of the monographic book edited by Technical Publishers, Warsaw, Poland, 1972, total 35 pages.

Rusek, A., Charge Storage Diodes with Retarding Field, Electronics 4, 1973, pages 132-136, Poland

Rusek, A., Pulse Shaping Circuits, book ordered by Industrial Institute of Electronics, total 30 pages, Warsaw, Poland, 1976.

Rusek,A., Output Pulse Amplifiers, Application Note ordered by Industrial Institute of Electronics, total 27 pages, Warsaw, Poland, 1976.

Rusek, A., Wide-band Trigger Countdown 0.5 to 6 GHz, Electronics, pages 756-760, Poland, 1976.

Rusek, A., Pulse Circuit Design, Chapters 2 and 4, total 30 pages, Warsaw Technical University Publishers, 1976.

Rusek, A., Large Signal Model of the Pulse Tunnel Diode, Electronics 2, 1977, pages 73-76, Poland.

Rusek, A., Pulse Circuit Analysis and Design, Chapters 2 and 4, pages 56 to 77 and pages 107 to 121, Technical Publishers, Warsaw, Poland, 1977.

Rusek, A., The Analysis of Switching Processes in Output Pulse Amplifiers, Electronics 8, 1979, pages 456-459, Poland.

Rusek,A., Semiconductor Fast Pulse Generators, Monographic book edited by Technical Publishers, Warsaw, Poland, 1981, total 161 pages. The book was sponsored by Polish Electronic Industrial Committee.

Rusek, A., Principles of Electronic Circuits, book edited by Polish Educational Publishers, Volume 1 published in 1979, 80, 81, 82, 83, 84, 85, 86, 97, 88, 89, 90, 91, 92, 93 (50,000 copies each year). Total 296 pages.

Rusek, A., Principles of Electronic Circuits, publisher as above, Volume 2 published in 1983, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93 (50,000 copies each year). Total 236 pages.

Most Polish publications are available on request.

USA Publications (1984 to present)

Rusek, A., Comments on "Microprocessor Implementation of a Fast and Simultaneous Amplitude and Frequency Detector for Sinusoidal Signals", IEEE Transactions on Instrumentation and Measurement, Vol. IM-35, no.4, December 1986, page 654.

Rusek, A., Mahmud, S., A Switched-Battery Capacitance Meter, IEEE Transactions on Instrumentation and Measurement, Vol. IM-35, no. 4, December 1986, pages 551-554.

Rusek, A., Error Minimization in Time Constant Measurements, IEEE Transactions on Instrumentation and Measurement, Vol. IM-36, no.1, March 1987, pages 29-31.

Rusek, A., Error Analysis of a Rate Generator Tuning Linearity, IEEE Transactions on Instrumentation and Measurement, Vol. IM-37, no.1, March 1988, pages 81-85.

Stuckman, B.E., Rusek, A., Comments on "A New Global Optimization Method for Electronic Circuit Design", IEEE Transactions on Circuits and Systems, Vol. CAS-34, no.9, September 1987, pages 1124-1125.

Mahmud, S., Rusek, A., Ganesan, S., A Microprocessor Based Dual Slope Phase Meter, IEEE Transactions on Instrumentation and Measurement, Vol. IM-37, no.3, September 1988, pages 374-378.

Mahmud, S., Rusek, A., A Microprocessor Based Switched-Battery Capacitance Meter, IEEE Transactions on Instrumentation and Measurement, Vol. IM-37, no.2, June 1988, pages 191-194.

Mahmud, S., Ganesan, S., Rusek, A., Programmable Self-Adaptive Digital Frequency Multipliers, IEEE Transactions on Instrumentation and Measurement, Vol. IM-37, no.2, June 1988, pages 227-230.

Rusek, A., Carlen, E., Circuit Analysis Software Testing, Proceedings of IEEE Midwest Symposium on Circuits and Systems, 1993

Rusek, A., Carlen, E., Simulation Versus Reality in Electronic Circuit Simulation Software, IASTED Conference, Pittsburgh, May 1994, included in International Conference Proceedings, Modeling and Simulation, MS 94

Rusek, A., Margossian, R., Ground Current Tests in Metal Planes, IEEE International Symposium on Electromagnetic Compatibility, August 1995, Atlanta, Georgia, presented and published in Conference Proceedings.

Rusek, A., Witt, H., Margossian, R., Simulation and Modeling of Metal Plane Ground Connections, Society for Computer Simulation Conference, Ottawa, July 1995

Rusek, A., Requirements for Communication System Level Simulation Software, International Society for Computers and Their Applications Conference, San Francisco, March 7-9, 1996, paper accepted in December 1995, presented in March 1996, published in Conference Proceedings of ISCA.

Rusek, A., Witt, H., Miesterfeld, F., Simulations of the Cross-Talk in Multiconductor Transmission Lines, 1996 Summer Computer Simulation Conference organized by Society of Computer Simulations, Conference Proceedings, 1996.

Catherino, H., P., Shi, Rusek, A., Modeling and Simulation of Capacitor Assisted Engine Starting, 1996 Summer Computer Simulation Conference organized by Society of Computer Simulations, Conference Proceedings, 1996.

Rusek, A., Witt, H., Hagen, T., Miesterfeld, F., Simulation of Measurement of Mutual Parameters of Symmetric Transmission Line, 1996 Computer Simulation Conference in Miami, Florida, Society of Computer Simulations, December 1996, Conference Proceedings

Rusek, A., Applications of Macromodels in Communication Systems and Circuits Courses, invited paper presented at ISCA International Conference on Computers and Their Applications, Tempe, Arizona, published in the Conference Proceedings, 1997.

Catherino, H, Burgel, J., She, P., Rusek, A., Zou, X., Capacitor Assisted Engine Starting, 18th IFIP TC7 Conference on Systems Modeling and Simulation, Detroit, July 1997, paper presented and published in Conference Proceedings.

Chen, C., Witt, H., Rusek, A., Modeling and Simulation in Predicting Crosstalk of Multiconductor Transmission Lines, 18th IFIP TC7 Conference on System Modeling and Simulation, Detroit, July 1997, paper presented and published in Conference Proceedings.

Rusek A., Applications of Macromodels in Communication Systems and Circuits, 18th IFIP TC7 Conference on System Modeling and Simulation, Detroit, July 1997, paper presented and published in Conference Proceedings.

Hagen, T., Rusek, A., Chen, C., Simulation of Chattering Relay Test Systems for Prediction of Noise Coupling, SAE 1997 Novi, Michigan, TOPEC SAE J1113/2, presented and published in Conference Proceedings.

Rusek, A., Catherino, H., Simulation and Modeling of Battery Chargers/Maintainers, Thirteenth International Conference on Computers and Their Applications, Honolulu, Hawaii, March 1998, presented and published in Conference Proceedings.

Catherino, H., Burgel, J., Rusek, A., Modeling and Simulation of Lead-Acid Battery Charging, 21 st. International Power Sources Symposium, Brighton, England, May 1999 (paper presentated and published in the Conference Proceedings)

Rusek, A. Frequency and Time Interval Meters, J. Wiley Encyclopedia, chapter, published March 1999, pp. 726-738 vol. 7

Rusek, A., Oscilloscopes, published March 1999, pp.435-446, vol. 15, J. Wiley Encyclopedia.

Rusek, A., Time Domain Reflectometers, published March 1999, pp. 351-360, vol. 18., J. Wiley Encyclopedia.

Rusek, A., Phase Meters, published March 1999, pp.188-200, vol. 16. J. Wiley Encyclopedia.
(Two consecutive editions have been published)

Rusek, A., Catherino, H., Feres, F., Digitally Controlled Battery Maintainer,, ICCA, Las Vegas, November, 1998, presented and published in Conference Proceedings, pp. 258-260.

Catherino H., Burgel J., Rusek A., and Feres F., Modeling and Simulation of Lead-Acid Battery Charging, Paper presented in May 99 at 21st International Power Sources Symposium in Brighton, England. A. Rusek prepared models for simulations. Paper published in Journal of Power Sources, 80 (1999), pp. 17-20. (re: Dr. Henry Catherino, TACOM, phone 810 574-6114).

A. Rusek A., D. Stevens D., F. Miesterfeld F., Invited 90-minute presentation: Tests and Modeling of EMI Effects in Automotive Data Busses,
Paper presented at SAE International Workshop sponsored by SAE and IEEE, Design for Automotive EMC TOPTEC, April 1999. The text published in the SEA Workshop materials of EMC Society of IEEE.

Rusek A., Development of Tests and Modeling of EMC Effects in Automotive Data Busses, paper presented at Second International Conference on Information, Communication & Signal Processing, December 1999, Singapore. Conference supported by IEEE Signal Processing Chapter, Singapore in participation with National Science and Technology Board Telecommunication Authority of Singapore.Text published in Conference Proceedings.

Rusek A., Stevens D., Miesterfeld F., Oltzmann K., Catherino H., Applications of PSPICE CAN Calculator to Analyze Effects of Emissions from Automotive Data Busses, Proc. Of 2000 Summer Computer Simulation Conference (SCS), July , 2000, Vancouver, British Columbia.

Catherino H., Shi P., Rusek A., Feres F., Self-Discharging of Lead-Acid Batteries, paper No. 2000-01-0305, SAE 2000 World Congress, March 2000.

Rusek A., Oakley B., PSpice Applications in the Teaching of Wireless and High Frequency Electronics, Proc. of the ASEE, # 2793, New Mexico, 2001
Rusek A. and Oakley B., PSpice Appl. in the Teaching of Comm. Electronics, Proc. of the ASEE, Session 2793, New Mexico, 2001
Rusek A. and Oakley B., Computer Modeling of CAN Auto Bus Transc., 2-nd IEEE Electro/Info Tech. Conf. at Oakland University, Rochester, MI June 2001.
Rusek A. and Oakley B., Broad-Band Antenna Amplifier for Low Level Signal Meas., Eng. in Medicine and Biology Soc. Conf., Istanbul, Turkey, October 2001
Rusek A., Oakley B., Stevens D., Hillier L., Computer Modeling of CAN Automotive Bus Transceivers, Second IEEE Electro/Information Technology Conference, Oakland University, MI, June 7-9, 2001
Rusek A., Oakley B., Closing the Loop in High-Frequency Amplifier Design Processes, Proc. of the ASEE 2002, Michigan, Session E220
Rusek A., Oakley B., Demonstrating CDMA, Frequency Hopping, and Other Wireless Techniques with PSPICE, Proc. of the ASEE 2002, Montreal 2002
Gross B., Kandlikar S., Oakley B., Hanna D., Rusek A., Stryker., An Examination of the Effects of an AC Pulsed Electric Field on Cell Mortality in SWLA-2 Hybrodimas, IEE_EMBS Conference, September 2004
Rusek A., Time Domain Reflectometry, Chapter in J. Wiley RF and Microwave Engineering Encyclopedia, March 2005 (Vol. 5, pp.4436-4450)
Catherino H., Burgel J., Shi P., Rusek A., Zou X., Hybrid Power Supplies: A Capacitor Assisted Battery, 2005 International Power Sources Symposium, Brighton, UK, April 2005
Aloi D., Rusek A. Oakley B., A Relative Technique for Characterization of PCV Error of Large Aperture Antennas Using GPS Data, IEEE Transactions on Instrumentation and Measurement, October 2005
Catherino H., Burgel J., Shi P., Rusek A., Zou X., Hybrid Power Supplies: A Capacitor Assisted Battery, Journal of Power Sources, 162 (2006) 965-970, Elsevier.
Rusek, A. Frequency and Time Interval Meters, J. Wiley Encyclopedia, chapter, 2007 Internet Edition
Rusek, A., Oscilloscopes, J. Wiley Encyclopedia, chapter, 2007, Internet Edition
Rusek, A., Time Domain Reflectometers, J. Wiley Encyclopedia, chapter, 2007 Internet Edition
Rusek, A., Phase Meters, published March, J. Wiley Encyclopedia, chapter, 2007 Internet Edition.
Rusek A. and Oakley B., AC 2007-246: Easy to Do Transmission Line Demostrations of Sinusoidal Standing Waves and Transient Pulse Reflections, ASEE 2007 Conference, accepted paper.

Invited by the Oakland University Senate Teaching and Learning Committee to write a paper about teaching, published in the Committee Bulletin, 1997.

More than thirty professional presentations at different symposia, conferences, workshops, industry

Translations of several books (languages: English, French, Russian, Polish)

Review and editing of four books (French, Russian, English languages, two books available on request)

Other Publishing Activities

Reviewer of Technical Publishers, Poland
Reviewer of Polish Educational Publishers, Poland
Reviewer of IEEE Transactions on Instrumentation and Measurement, USA (8-12 reviews yearly)
Reviewer of IEEE Transactions on Vehicular Technology, USA (2 reviews yearly)
Reviewer of IEEE Transactions on Education, USA
Reviewer of Prentice Hall Publisher, USA
Reviewer of Houghton Mifflin Publishing Company, USA

More than 50 Technical Reports

MISCELLANEOUS:

invited by the Oakland University President:
- to speak to Oakland University faculty on 40-th Anniversary of Oakland University, April 1997
- to have a Fall 1997 commencement speech.

REFERENCE INFORMATION:

Available on request.

Osamah A. Rawashdeh

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Rochester Hills, MI 48309

EDUCATION

Ph.D. Electrical Engineering, December 2005
Department of Electrical and Computer Engineering, University of Kentucky

M.S. Electrical Engineering, May 2003
Department of Electrical and Computer Engineering, University of Kentucky

B.S. Electrical Engineering (Magna Cum Laude), December 2000
Department of Electrical and Computer Engineering, University of Kentucky

RELATED WORK EXPERIENCE

Assistant Professor
08/2007 – present, Electrical and Computer Engineering Dept., Oakland University

Lecturer
08/2006 – 07/2007, Department of Electrical and Computer Engineering, University of Kentucky

Instructor
01/2006 – 08/2006, Department of Electrical and Computer Engineering, University of Kentucky

Research Fellow (Kentucky Research Challenge Trust Fund)
06/2003 – 12/2005, Intelligent Dependable Embedded Architectures Lab., University of Kentucky

Teaching Assistant
Fall 2000, Spring 2001, Fall 2002, and Spring 2003
Department of Electrical and Computer Engineering, University of Kentucky

Research Assistant
03/2000 – 08/2000 and 05/2001 – 08/2002, Embedded Systems Laboratory, University of Kentucky

Microlab Consultant
06/1999 – 03/2000, Computing Services, University of Kentucky

Intern
05/1998 - 06/1998 and 06/1992 - 07/1992 , Arabia Electric LTD –SIEMENS, Jeddah, Saudi Arabia

Intern
01/1992 - 05/1992, Daimler Benz AG, Hamburg, Germany

PUBLICATIONS

1. **O. Rawashdeh** and J. Lumpp, Jr. "Ardea: A Dynamic Reconfiguration Framework for Fault-Tolerant Distributed Embedded Systems," in preparation.

2. Nasr A. Shuaib, Marwan K. Khraisheh, and **Osamah A. Rawashdeh**, "Size effects on the forming limit diagrams of thin brass sheets," Proc. of the 1st International Conference on Micromanufacturing, Greenville, SC, Sept. 2007.

3. **Osamah A. Rawashdeh**, Christopher Potts, Tom McKnight, Steve Dominick, and James E. Lumpp, Jr., "A Dual Antenna Tracking System for Light UAV Wireless Range Extension," AIAA Infotech@Aerospace Conference, May 2007.

4. D. J. Brown, T. W. Arrowsmith, **O.A. Rawashdeh**, J.E. Lumpp, Jr., "Distributed Embedded Network Architecture for Unmanned Aircraft Systems," AIAA Infotech@Aerospace Conference, to appear, May 2007.

5. **Osamah A. Rawashdeh** and James E. Lumpp, Jr. "Run-Time Behavior of Ardea: A Dynamically Reconfiguring Distributed Embedded Control Architecture," IEEE Aerospace Conference, IEEEAC paper # 1516, March 2006.

6. **Osamah A. Rawashdeh**, *Ardea: A Reconfigurable Architecture for Fault Tolerant Distributed Embedded Systems,* Ph.D. Dissertation, Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY, Dec. 2005.

7. G. Chandler, C. Harr, **O. Rawashdeh**, D. Feinauer, D. Jackson, A. Groves, and J. Lumpp, "Wireless Extension of an Avionics Bus for Prototyping and Testing Reconfigurable UAVs," proc. AIAA Infotech@Aerospace Conference, paper # AIAA-2005-7151, September 2005.

8. **O. Rawashdeh**, D. Feinauer, C. Harr, G. Chandler, D. Jackson, A. Groves, and J. Lumpp, "A Dynamically Reconfiguring Avionics Architecture for UAVs," proc. AIAA Infotech@Aerospace Conference, paper AIAA-2005-7050, September 2005.

9. D. Jackson, A. Groves, **O. Rawashdeh**, G. Chandler, W. Smith, and J. Lumpp, "Evolution of an Avionics System for a High-Altitude UAV," proc. AIAA Infotech@Aerospace Conference, paper # AIAA-2005-7152, September 2005.

10. Sumanth Chikkamaranahalli, R. Ryan Vallance, and Afzal Khan, Eric R. Marsh, **Osamah A. Rawashdeh**, J. E. Lumpp, and Bruce L. Walcott, "Precision Instrument for Characterizing Shape Memory Alloy Wires in Bias Spring Actuation," Review of Scientific Instruments Journal, vol. 76, June 2005.

11. **Osamah A. Rawashdeh**, Garrett D. Chandler, and James E. Lumpp, Jr., "A UAV Test and Development Environment Based on Dynamic System Reconfiguration," International Conference on Software Engineering – proc. of the 2005 Workshop on Architecting Dependable Systems (WADS05), pp. 1 – 7, May 2005.

12. G. Chandler, D. Jackson, A. Groves, **O.A. Rawashdeh**, N.A. Rawashdeh, W. Smith, J. Jacob, and J.E. Lumpp, Jr., "A Low-Cost Control System for a High-Altitude UAV," IEEE Aerospace Conference, IEEEAC paper # 1438, March 2005.

13. A. Simpson, **O.A. Rawashdeh**, S. Smith, J. Jacob, W. Smith, and J.E. Lumpp, JR., "BIG BLUE: A High-Altitude UAV Demonstrator of Mars Airplane Technology," IEEE Aerospace Conference, IEEEAC paper # 1436, March 2005.

14. **Osamah A. Rawashdeh** and James E. Lumpp, Jr., "A Technique for Specifying Dynamically Reconfigurable Embedded Systems," IEEE Aerospace Conference, IEEEAC paper # 1435, March 2005.

15. A. Simpson, **O. A. Rawashdeh,** J. Jacob, J. E. Lumpp, S. Smith, and W. Smith, "BIG BLUE II: Mars Aircraft Prototype with Inflatable-Rigidizable Wings," 43rd AIAA Aerospace Sciences Meeting and Exhibit, January 2005.

16. K.N. Roberts, K.M. Miller, J.E. Lumpp, M. Wells, C.P. Harr, **O.A. Rawashdeh**, and S.W. Scheff, "Computer Controlled Cortical Contusion Device for the Mouse," Journal of Neurotrauma, vol. 21, no. 1296, November 2004.

17. **Osamah A. Rawashdeh**, *Design of a Computer Controller for a Nasal Drug Delivery Device using SMA Actuators*, Thesis, Masters of Science in Electrical Engineering, Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY, May 2003.

18. S. Chikkamaranahalli, R.R. Vallance, **O.A. Rawashdeh**, J.E. Lumpp, and B. Walcott, "Experimental Setup to Characterize Nitinol Wires," International Conference on Shape Memory and Superelastic Technologies (SMST-2003), May 2003.

19. S. Chikkamaranahalli, R.R. Vallance, **O.A. Rawashdeh**, J.E. Lumpp, and B. Walcott, "Characterization of SMA Wire in Bias Spring Actuation," Proceedings of the 2003 International Conference on Shape Memory and Superelastic Technologies (SMST-2003), pp. 583-593, May 2003.

20. J.E. Lumpp, K.N. Roberts, M. Wells, J.A. Main, C.P. Harr, **O.A. Rawashdeh**, and S.W. Scheff, "Characterization of a Computer Controlled Non-penetrating Cortical Contusion Device," Journal of Neurotrauma, vol. 20, no. 1087, May 2003.

21. S. Chikkamaranahalli, R.R. Vallance, **O.A. Rawashdeh**, J.E. Lumpp, and B. Walcott, "Precision Instrument for Characterizing Contraction and Extension of Nitinol Wire," Proceedings of the 17th Annual Meeting of the American Society for Precision Engineering (ASPE), October 2002.

POSTERS

1. Nasr Shuaib and **Osamah Rawashdeh**, "A Microforming Setup for Formability Analysis," The Minerals, Metals & Materials Society (TMS) Annual Meeting & Exhibition - 2007, submitted Jan. 2007.

2. G. Chandler, D. Brown, T. Arrowsmith, S. Ambat, S. Jeganathan, S. Sridar, **O. Rawashdeh**, and J. Lumpp, "Adaptive Computing for Spacecraft" 12th Annual Kentucky EPSCOR Conference. Louisville, KY, May 2006.

3. **O. Rawashdeh**, D. Feinauer, C. Harr, A. Groves, G. Chandler, and D. Jackson, "Dependable Architectures and Reconfigurable Test Environments for UAV Control Systems," University of Kentucky ECE Day, Lexington, KY December 10, 2004

PATENTS

Vallance, R.R., S. Chikkamaranahalli, **O.A. Rawashdeh**, J.E. Lumpp, B. Walcott, and E. Wolsing, "System and Device for Characterizing Shape Memory Alloy Wires," U.S. Patent 6,916,115, July 12, 2005.

HONORS AND AWARDS

- 2003/04 and 2004/05 Commonwealth of Kentucky Research Challenge Trust Fund Fellow
- Magna Cum Laude BSEE, Dec. 2000
- University of Kentucky Scholars Program
- Member of Eta Kappa Nu Honor Society since Oct. 1999
- Member of Tau Beta Pi Honor Society since Nov. 1999

MEMBERSHIPS

- Institute of Electrical and Electronics Engineers (IEEE)
- Association for Computing Machinery (ACM) and ACM-SIGPLAN
- American Institute of Aeronautics and Astronautics (AIAA)
- American Radio Relay League (ARRL) – Amateur Extra Class licensee (callsign "AI4DL")

PROFESSIONAL ACTIVITIES

- "Project Lead the Way" Affiliate Professor for Digital Electronics.
- Undergraduate Affairs (ECEGAF) committee member, ECE Dept., Oakland University, 2007/08
- Graduate Affairs (ECEUAC) committee member, ECE Dept., Oakland University, 2007/08
- Faculty Advisor for the Uni. Of Kentucky Linux User Group.
- Judge for the 2006 UK Electrical and Computer Engineering Day Competition.

October 13, 2006

RESUME

Name: **Mohamed A. Zohdy**

Present Address: 3032 Palm-Aire Drive, Rochester, Michigan 48309-4401

Telephone No.: (248) 375-9159 (Residence); (248) 370-2234 (Office)

Date of Birth: 23 May, 1947 **Marital Status:** Married, three children

Personal: **Height:** 6'2"; **Weight:** 181 lbs.; **Health:** Excellent

EDUCATION

Ph.D. Electrical Engineering, University of Waterloo, 1977
Dissertation: "Optimization and Sensitivity of Constrained Configuration Feedback Control with Application to System Regulation".
Concentration: Multivariable Control – Optimization Methods – Dynamic Systems.

M.A.Sc. Electrical Engineering, University of Waterloo, 1973
Thesis: "Optimal Approximation of Linear Multivariable Systems"
Concentration: System Theory – Analog and Digital Circuits – Simulation – Identification.

B.A.Sc. (Honors) Electrical Engineering, Cairo University, 1968
Concentration: Automatic Control, Systems and Circuits, Electrical/Electronic Instrumentation.

SCHOLARSHIPS

Canadian – NRC Graduate Scholarship
University of Waterloo Fellowship
Rotary International Fellowship
Cairo University Scholarship

PROFESSIONAL EXPERIENCE

9/92-1/93	University of Waterloo, Visiting Professor (Sabbatical)
1981-Present	**Oakland University**, Rochester Hills, Michigan 48309
1996-Present	*Professor of Engineering and Computer Science*
1988-1996	*Associate Professor of Engineering and Computer Science*
1981-1987	*Assistant Professor of Engineering and Computer Science*
1/01-7/01	University of Waterloo, Visiting Professor

Research: Robust control, computer-aided intelligent estimation/control, adaptive and multidimensional algorithms, pattern information processing, smart simulation, discrete event dynamic systems, Neurocomputers, chaos in physical dynamics.

Applications: Precise motion control, flexible robotics, smart manufacturing, autonomous vehicles, target tracking, industrial electronics, automatic powertrain, fuel cells, biotechnology

Introduced new courses at Oakland University: SYS 631, Estimation Theory, SYS 595 Multivariable Frequency-domain Control, SYS 569 Simulation, SYS 558 Energy Conversion and Optimization, SYS 433 Modern Automatic Control, discrete filters, systems and neural networks at Waterloo University.

1977-1981 **Ontario Hydro**, 711 University Ave., Toronto, M5G, 1X6, Canada
Research Engineer
Development and research of computer control, advanced software for estimation, reliability, and control of large-scale systems. Simulation and identification of wide spectrum circuit switching transients. Research on computer-based stabilizers and their on-line implementation.

1977-1979 **University of Waterloo**, Department of Electrical Engineering, Waterloo, Ontario N2L 3G1 Canada
Adjunct Professor
Developed graduate-level courses on modern and optimal control, estimation theory and applications. Participated in thesis advising and industrial sponsored research.

1972-1977 **University of Waterloo,** Waterloo, Ontario N2L 3G1, Canada
Teaching and Research Assistant: Undergraduate electrical engineering courses, control systems, energy conversion and network theory.
Research work: Areas of multivariable control theory, system design and engineering. Also Research Associate with the Waterloo Research Institute and Westinghouse Electric: nuclear apparatus modeling and simulation and modern computer control.

1968-1971 **Cairo University/Egypt Iron and Steel Corporation,** Cairo, Egypt
Instructor and Research Engineer
Instructed on linear control systems, optimal systems analysis, instrumentations and electrical devices. In addition, operation and development of novel variable-speed drives and industrial electronics for the Egyptian Iron and Steel Corporation cold and hot rolling mills.

1966-1967 **Dowty Industries Ltd.,** Cheltenham, England
Assistant Engineer
Worked on conditional control logic devices and hydraulic control for aerospace applications.

PROFESSIONAL SERVICE

IEEE/High School Math/Tech. Mentor-active
Advisor ,Law school placement for engineering graduates
IEEE Senior/ Fellow grade nominations, selections
Technical program committee co-chair, IEEE Int.
Symposium Signal processing and information technology(Neur
Tenure and promotion external research evaluator
Ph.D. external examiner, "Coordinated Hybrid Agent Framework", Mr. H. Li, University of Waterloo
Ph.D. external examiner, "Active Hinf Noise Control Design", Ms.Oulfat, Alexandria University
Ph.D. external examiner, " RDNN Control for Biped Motion", Mr. Zouihry, Mansoura University
Ph.D. external examiner, "Stability Analysis of Fuzzy Control by Genetic Algorithm", Ms. Khadam, Alexandria University
IEEE Oakland branch counselor
Tech. Editor, Int. J. Robot. and Automation
Review Chair American Control Conference 2004, 2005.
Mich. State board of Professional Engineers, Technical Evaluator
Board member, Pontiac Health Services

Technical Editor, Simulation Journal, Society of Computer Simulation
Associate Editor, Int. J. SYS Science
Member, Advisory Board on Education, Michigan State Board of Professional Engineers
IEEE Distinguished Student Counselor
Review Chairman, American Control Conference
Executive Chairman of Division I, Southeast Michigan IEEE Chapter
Co-chairman, IEEE technical working committees on computer industrial applications, control systems, intelligent systems
Registered member of the Association of Professional Engineers of Ontario
Member of the Canadian Engineering Society
Senior Member of IEEE Information theory, Automatic Control, and Circuits and Systems Societies. Nominated for Fellow IEEE.
Member, Eta Kappa Nu and Sigma Si Scientific Honor Societies
Past President, Association of Muslim Scientists and Engineers
Member, IEEE Board of Governors Circuits/Systems
Member, IEEE Control Systems Distinguished Awards Committee
Awarded IEEE Millennium Medal

OAKLAND UNIVERSITY SERVICE

University Library Committee
NCAA Division I Steering Committee
Undergraduate Research Council
University Research Committee
Senate Committee on Human Relations
University Applied Statistics Committee
University Undergraduate Committee on Instruction
School of Engineering Research Committee, Past Chair
School of Engineering Library Committee, Past Chair
School of Engineering Committee on Appointment and Promotion
Electrical and Systems Engineering Departmental Graduate and Undergraduate Committees
Committee on Computer Systems

FUNDED RESEARCH

I. PI, Co-PI:

- PI, "Fuel Cell System for Transportation",$53K, extension,USDA(DOE),2005.
- PI, "New hybrid Fuel Cell systems", $55K, NSF, promised 2005.
- CO-PI, "SIBHI", NSF, $448K.
- CO-PI,Neural architecture Sensor nets for engine diagnosis", Honda, Mar.2005, pending.
- CO-PI, "Catabonomics,Anabonomics: multidisciplinary approach to study functional Genomics", $ 240K, Mich. Life Sciences ,2005, reviewed and pending.
- CO-PI,"Novel Hydrogen storage in new Hydride Materials" SBIR II, NSF,2005.,received 2st review.
- PI, "Vehicle Traction Robust Stability Control", funded $24K, Valeo, 2001.
- PI, "Real-time Control of 42V System", funded $9K, Buehler, 2001.
- PI, "Total Production and Quality Control in Metallic Industry using Computer-based Rechniques, funded $40K, U Cairo, 2001.
- PI, "Vehicle Traction and Robust Stability", funded $41.5K, Jideco, 2002.
- PI, "Systems Advanced Control and Lab", in kind $4.8K, GM PowerTrain, 2002.
- PI, "Vehicle Steering and Braking Control", funded $5.5K, Mich. REF, 2002.
- PI, "Synchronized Multiple Views for Systems Modeling", $1,000 University Research Committee, 1996.
- PI, "Total Quality and Production Control for Metallic Industry by Computer-based Approaches", Funded, $100,000 FRCU/USAID, until mid of 2000.
- PI, "Total Quality and Computer Control Implementation for Metallic Industry $50,000, FRCU/USAID, until the end of 2000. Prof. H.S. Abdel-Aty-Zohdy Co-PI.
- PI, "Real Time Control", $10,500 Egyptian ECB, until the end of 2000.

- PI, "Fuzzy-Chip Module 2000", follow up in-kind, $3,500, Omron Corp.
- CO-PI, "SMV for Physical and Engineering System Modeling", pending $75,000 NSF.
- Co-Investigator, "Math, Science, and Engineering Local Alliances", funded, $76,000, Eisenhower Fund., State of Michigan, till end of 2000.
- PI, "Total Quality and Production Control for Metallic Industry", funded $44K, FRCU/USAID, Jun. 99-00.
- PI, "Computer Control and Simulation: Nonlinear Automotive Systems", funded $24K, Valeo, Jun 00.
- PI, "Control Systems and Estimation Research Demonstration in Mechanical Dynamic Systems", funded $7K Egypt Technical Education, Feb 00.
- CO-PI, "Math, Science and Engineering Local Alliances", funded $76,000 Eisenhower Fund., Michigan 99.
- Co-PI, "Robust and Optimal Control Design for 4-Cyl, Engine", $46,682 plus $6,754, Chrysler Corporation 1995-96.
- Co-PI, "Building Conceptual Frameworks with Synchronized Multiple visualizations", NSF, PI, J.W. Russell of Chemistry Dept., $153,877, 1995, M. Zohdy's allotment $34,000 plus $4,350 in equipment.
- Co-PI, "Computer Control of Steel Processes, Ahlia Co.", STC, US Agency for International Development, PI, A. Bahgat of Cairo University, funded, $400,000, 1992-1995. Zohdy's allocation is $12,000 which doesn't come to Oakland directly. It covers several overseas travel, stipend for research reports, publication, and supervising Egyptian Graduate Students at Cairo University.
- PI, Quanser, Inc., "Fuzzy Logic Control System", funded in kind, $3,850, 1992.
- PI, AutoDesk Inc., "Piecewise-Linear Chaos", funded in kind, $3,850, 1992.
- PI, Oakland Research Committee, "Computer-Adided Machine Diagnosis", $1500, 1991-92.
- PI, A.R. Egypt, "Electromechanical Motion Control", $5,730, 1989-91.
- PI, Center for Robotics and Advanced Automation, "Robust Control", $5,175, 1986-87.
- PI, Controlled Power Company, "Variable Structure Control of Transformer Systems", $25,144, 1986-88.
- PI, Ontario Canada Hydro, "Voltage Stability of Nonlinear Systems", $10,000, 1982-83.

II. Investigator

a) at Oakland University

- Michigan Research Excellence Fund, PI, N. Loh, "Computer-Aided Machine Diagnosis", one course release time, 1989, 1990, 1992.
- General Dynamics, "Robust Evasive Target Predictors", $71,634, 1989-91, PI, N. Loh, Zohdy allotted $10,000 and a Post-doctoral fellow.
- General Dynamics, "Guidance and Control of Autonomous Land Vehicle", $159,800, 1987-89 PI, N. Loh, Zohdy allotted $5,000, and a Ph.D. Student.
- US Army, "Development and Implementation of Image Enhancement and Restoration", $149,760, 1985-87 PI, N. Loh, Zohdy allotted $5,000.
- US Army, "Design and Implementation of Chassis/Turret Disturb. Cancellation Controller, $179,830, 1983-85 PI, No. Loh, Zohdy allotted $1,000.

b) other

- Science and Technology Corp., "Computer-Based Tech. in Elect. Furnace Production, $230,000, 1992-93. PI, A. Bahgat, allotted travel and stipend. Supervision of Egyptian graduate student at Cairo University, $4,000.
- Electronics Research Institute, "Automated Device Control of Loom Movement", $50,000, 1991-92 PI, E. Abdallah, allotted one Ph.D. Peace Fellow for one year.
- USAID (FRCU), "Computer Control for Cement Manufacturing", $150,000, 1985-89 PI, F. Sakr, allotted travel and stipend of $5,000.
- EPRI, "Machine Parameter Identification", $100,000, 1982-83 PI, P. Dandeno, at Ontario Canada Hydro.

CONSULTATION

Westinghouse Corporation, GM Research, Ford Motor Company, General Dynamics, Eaton Corporation, United Nations Development Agency, and U.S. Agency for International Development.

GRADUATE STUDENT SUPERVISION

Masters with Thesis:

Master's Student: Nick Honold
Status: Finished

Master's Student: Shirley Zhu
Status: Finished

Master's Student: Chris Jablonski
Status: Finished

Master's Student: Maha Sabra
Status: Finished

Master's Student: E. Mahmood
Status: Finished

Master' Student: A. Sekhar
Status: Finished

Master's Student: J. Williquette
Status: Finished

Master's Student: V. Choute
Status: Finished

Ph.D. Students:

Doctoral Student: Jeff Piasecki
Status: Preparing Proposal

Doctoral Student: Raad Kasaab
Status: Passed Proposal

Doctoral Student: Hassan Ibrahim
Status: Graduated and now Assistant Professor,
Arab Academy Science and Technology

Doctoral Student: Lawrence Woods Chair
Status: Graduated, now with GM Research

Doctoral Student: Shady Elashhab
Status: Comprehensive Exam Taken

Doctoral Student: Jon Awbrey
Status: In Progress

Doctoral Student: Peter Pirozo
Status: In Progress

Doctoral Student: A. Zaher
Status: Graduated, Associate Professor, Kuwait University

Doctoral Student: I. Bucak
Status: Graduated, now with Daimler-Chrysler

Doctoral Student: A. Khan
Topic: Multisensor Fusion
Status: Graduated, now with Lear

Doctoral Student: M. Karam
Topic: Control by Dynamic Nueral Net

Status: Graduate, now Associate Professor, Tuskegee University

Doctoral Student: S. Fryska
Topic: Quantitative Chaos in Piecewise Linear Systems,
Status: Graduated, now V.P., Honeywell

Doctoral Student: B. Adamczyk,
Topic: System Diagnosis by Neural Nets
Status: Graduated, now Professor at Grand Valley State University

Doctoral Student: N. Salem,
Topic: Analytic Tools for Manufacturing Systems,
Status: Graduated, now President, Data Care Systems

Doctoral Student: A. Elramsisi
Topic: A Joint Domain Neural Net Approach
Status: Graduated, now Chief Science General, Egypt Air Force

Doctoral Student: J. Liu,
Topic: Interactive Design of Multivariable Control,
Status: Graduated, now Professor, Hongyang University

Doctoral Student: A.A. Wahab,
Topic: Robust Stabilization of Linear Multivariable Systems,
Status: Graduated, now at Kuwait Communication Research

Member on many other Ph.D. Committees. Numerous M.S. graduate student projects and thesis supervision.

EXTRACURRICULAR OUTREACH ACTIVITIES

Science and Mathematic tutoring and instruction.
Soccer coach/manager/player.
Strong background and interest in swimming, and tennis.
Travel national/international.

PUBLICATIONS

I. Journals

M. Zohdy et. Al., "Recursive Backstepping Control of Chaotic Duffing Oscillators", in Press, *Chaos Solutions, Fractals Journal*, 2006.

M. Zohdy et al., "Control of a Nonlinear Spring by Reinforcement", *Control and Intelligent Systems*, accepted, 2006.

M. Zohdy, M. Bruer, "Virtual Sensors and Robust Analysis for Dynamic Sensor Networks", *Int. J. Sys Science*, accepted, 2005.

M. Zohdy, A. Zaher," Adaptive Nonlinear Control of a Biped", Int. J. Model Simulation, 2006.

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M. Zohdy, R. Chaudhry," Optimal Genetic Algorithm for Sequential Molecular Biology", submitted *Bioinformatics*, 2004.

M. Zohdy, K. Mitton," Wavelet Nonlinear Analysis of Trans-membrane Proteins", submitted, *SPIE*, J., 2005.

M. Zohdy, A. Harb, "Synchronization of Chaotic Communication Systems", Int J Nonlinear Dynamics, 2003.

M. Zohdy, M. Karam, "Nonlinear Model-Based Dynamic Recurrent Neural Networks", Int J Sys Sci, 2003.

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Ihsan Bucak, M.A. Zohdy, "Application of Reinforcement Learning to Nonlinear Bouncing Cart", *Proc. ACC*, pp. 1198-1203, 1999.

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H.S. Abdel-Aty-Zohdy, M.A. Zohdy, "A Recurrent Dynamic Neural Network Approach and Implementation for Noise-Contaminated Signal Representation", *Midwest Symposium on Circuits and Systems*, Louisiana, 1994.

M.A. Zohdy, A. Khan, M. Kamel, "Global Optimization of Stochastic Multivariable Functions", *Proc. Southeastern Symposium on System Theory*, pp. 323-327, 1994.

M.A. Zohdy, S. Davis, "Genetic Optimization Methodology and Application to Production Mixes in Flexible Manufacturing", *ISRAM Conf.*, Hawaii, 1994.

S. Fryska, M.A. Zohdy, "Computing Environment Effects on Finite Difference Approximation of Continuous Nonlinear Systems", *American Control Conference Proceedings*, pp. 2654-2657, 1993.

B. Adamczyk, M.A. Zohdy, "Global Optimization of Stochastic Multivariable Functions", *i.b.id.*, pp 2339-2334, 1993.

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A. Abdel Wahab, M.A. Zohdy, "Composite System Stabilization by Decentralized Output Control, *i.b.i.d.*, pp. 1168-1171, 1992.

J. Liu, M.A. Zohdy, "Design of Performance Constrained Discrete-Time Control System via Optimization, *i.b.i.d.* pp. 1117-1119, 1992.

B. Adamczyk, M.A. Zohdy, "An Approach to Constrained Neural Global Optimization", *i.b.i.d.*, pp. 196-500, 1992.

F. Zanaty, N. Loh, M.A. Zohdy, "Optimization Scheme for Stability and Performance Robustness of Uncertain Systems", *i.b.i.d.*, pp. 68-75, 1992.

M.A. Zohdy, B. Adamczyk, "Nonstationary Models Estimation and Validation", *Proceedings of the Eighth International Conference on Mathematical and Computer Modeling*, College Park, MD, April 1991.

M.A. Zohdy, B. Adamczyk, "Least Squares Approach to Constrained Global Optimization," *Proceedings of the 30th IEEE Conference on Decision and Control*, Brighton, England, pp. 945-946, December 1991.

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M.A. Zohdy, E. Mertz, B. Adamczyk, "Stochastic Neural Leaning in Identification and State Estimation, *Proc. ACC*, pp. 1412-1414, Boston, 1991.

J. Liu, M.A. Zohdy, "Performance Constrained Stabilization Problems Systems with Uncertainties and Perturbatiens, *Proc. ACC*, pp. 3142-3144, Boston, 1991.

A.M. Elramsisi, M.A. Zohdy, "An Optimal Neural Net Model for Image Coding in the Position-Frequency Space in the Presence of Noise", *Proc. IEEE Int. Symposium on Information Theory*, pp. 140-143, Calif. Jan. 1990.

E. Yaz, S. Fadali, M.A. Zohdy, "Determination of Stochastic Robustness of Compensated Torque Scheme", *Proceedings of American Control Conference*, pp. 720-727, San Diego, June 1990.

A. Elramsisi, M.A. Zohdy, S. Fadali, "An Integrated Estimation and Control for Piecewise Linear Systems Using Neuro Algorithms, *Proceedings of American Control Conference*, pp. 3007-3012, San Diego, June 1990.

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M.A. Zohdy, J. Liu, "Robust New Discrete-Time Control Design", *ibid.*

A. Elramsisi, M.A. Zohdy, "A Hybrid Neural Net Structure for Non-Orthogonal Gabor Transform", *ibid.*

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M.A. Zohdy, R. DeVricse, "Estimation and Control of Automotive Engine Speed Using Fuzzy Logic", invited presentation, *American Control Conference*, June 1989.

A. Elramsisi, M.A. Zohdy, "Image Modeling and Coding in Spacial-Frequency Domain by Neural Networks", *20th Pittsburgh Conference on Modeling and Simulation*, 1989.

M.A. Zohdy, J. Liu, "Some Results on System Robustness Analysis", *20th Pittsburgh Conference on Modeling and Simulation*, 1989.

A.A. Abdul Wahab, M.A. Zohdy, "Robust Eigenvalue Clustering", *proceedings Midwest Conference on Circuits and Systems*, St. Louis, MO Aug. 1988.

A.A. Abdul Wahab, M.A. Zohdy, "Explicit Solutions of Lyapunov and Riccati Matrix Equations", *ibid.*

M.A. Zohdy, Jun Liu, "Variable Structure System for Electric Arc Furance Control", in *proceedings of American Control Conference*, pp. 2189-2193, 1988.

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Appendix C – Vitae of Electrical and Computer Engineering Faculty

Short Curriculum Vita:
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DEGREES:

INSTITUTION	DEGREE	DATE	FIELD OF STUDY
University of Waterloo,	PhD	1980	Electrical Engineering
Waterloo, Ontario, Canada	*"Multilevel Storage in Charge-Coupled Devices"*		
University of Waterloo,	M.A.Sc	1975	Electrical Engineering
Waterloo, Ontario, Canada	*"Noise in Charge-Coupled Devices"*		
Ain Shams University	—	1973	Advanced Mathematics
Cairo, Egypt			
Cairo University	B.A.Sc B.EE	1972	Electrical Engineering
Faculty of Engineering			
Cairo, Egypt	First Class Honors		Electronics and Communications

AREAS OF SPECIALIZATION

- Bio-Inspired Intelligent Signal Processing
- Electronic Nose: Smart Interface Systems, and Novel Resonating Polymer and DNA/Protein-Sensors.
- Embedded Systems of Neural Networks, and Genetic Algorithms using FPGAs and IC Chips, with emphasis on Spiking NNs.
- Bio-Technology with Sub-Microelectronic Chip Integration.
- Application Specific Integrated Circuits (ASICs), and Systems-in-a-Package (SiP).
- Analog, Digital and Mixed-Signal Integrated Circuits.
- Device/Circuit Modelling and Simulation.
- Integrated Circuits technology and silicon based CMOS processing.
- Electronic Devices: Low noise, Low power Devices with Noise analysis and measurements.

WORK EXPERIENCE:

- PROFESSOR, Department of Electrical and Computer Engineering since 2004, and Director of the Microelectronics System design Lab since 1995 at the School of Engineering and Computer Science, Oakland University. (Started 1981)
- Technology Leader of Bio-Inspired Systems for: Information, Sensors, Materials-Manufacturing, and Human Effectiveness Directorates at the Air Force Research Laboratory, Wright Paterson Air Force Base, 2007.
- Research Faculty Fellow, Air Force Research laboratory (AFRL), Information Directorate, Wright-Paterson Air Force Base, (IFTA/WPAFB) *"Reconfigurable Embedded Signal Processing Methodology with Bio-Computing and Bio-Inspired Systems-on-a-Chip,"* May-August, 2003.
- Faculty Fellow, AFRL/IFTA, WPAFB, *"Intelligent Information Perception via Bio-Inspired Systems for Electronic Nose,"* June- August, 2002.
- Faculty Fellow , National Academy of Sciences (NAS)/National Research Council (NRC)/ US Air Force Office of Scientific Research (AFOSR), "New Algorithms and Hardware Implementation for Intelligent Information Processing (IIP) using Neural Nets and Genetic Algorithms," July-October, 2001.

- Faculty Fellow, NAS/NRC/US AFOSR on "Dimensional Analysis and Modelling, Applied to High Speed Micro-System Integration," July-Sept 2000.
- Faculty-Intern, Chrysler Technology Center:
  – Advanced Manufacturing Engineering (AME), "Year 2000 Strategy for Embedded Controls," May-September 1998
  – AME, Minivan Platform, "Identification Systems for AVI Requirements in Assembly. Trim/Chassis/Final (TCF)," May-August 1997.
- Consultant to FANUC-BERKELY MEMS Lab; GM Research; WLM Associates; and ITT, 1982-1996.
- Founder 1992, and Director 1995-present, Microelectronics System Design Lab, Oakland University.
- Visiting Associate Professor, 1995, University of Michigan, Ann Arbor, Center for Integrated Sensors and Circuits, " Power Management Chip for Environmental Multi-Sensor cluster," DARPA Project.
- Visiting Assistant Professor, May-August 1984, University of Waterloo, Waterloo, Ontario, Canada. Institute for Computer Research, "The VLSI Systems on Silicon project."
- Research Associate,October 1980-March 1981, University of Waterloo, Ont, Canada, "Surface and Bulk minority carrier generation rates, and surface states density, theory and measurements."
- Graduate Research Fellow, 1975-80, Natural Science and Engineering Research Council of Canada (NSERC),University of Waterloo.
- 1972-73, Instructor, Cairo University, Faculty of Engineering.

PROFESSIONAL ASSOCIATIONS:

- IEEE, The Institute of Electrical and Electronic Engineers, Student Member 1972-1981, Member 1981-present.
- Eta Kappa Nu, Electrical and Computer Engineering Honor Society, Honored Member 1991-present, and Faculty advisor to the Oakland University Chapter (Iota-Chi), 2004-2006
- Sigma-Xi, International honor society for scientific and engineering research, Active honored member of the Theta Psi Chapter/OU, 1987-present
- ACM, Association for Computing Machinery, Member 1985-96
- AAUP, American Association for University Professors, Member 1981-present
- ASEE, American Society of Engineering Education, member 1985-1999
- SIGDA, Member of the Special Interest Group on Design Automation (SIGDA). 1990-99
- AWIS, Association for Women In Sciences, Member and Advocate Speaker, 1992 -2001
- IASTED, Member of the International Association of Science and Technology for Development, 1991 - 1997.
- CSEE, Canadian Society for Electrical Engineering, Member 1980,
  EIC, Engineering Institute of Canada, Member 1981
- SWE, Society for Women in Engineering, Member 1982- 92; Senior Member 1992-present; Faculty Advisor: the Oakland University SWE Chapter, 1982-1998.

Honors and Awards

I- HONORS AND PROFESSIONAL SERVICES:

1. Technology Leader of Bio-Inspired Systems, Intergovernmental Personnel act Appointee (IPA), at the Air Force Research Laboratory, Wright Paterson Air Force Base, 2007-2008.
2. Distinguished Lecturer for the IEEE Circuits and Systems Society (CASS) 2004 -to- 2005, with Extended 3 presentations in 2006.
3. Member of the BIO-X and X-TRONICS Teams, AFRL/Materiales and Manufacturing/Human effectiveness/Sensors and Information Directorates, May 2007-present

4. CHAIR of the IEEE/Circuits and Systems Society (CASS) Gustav R. Kirchhoff's TECHNICAL FIELD Award Committee, May 2005-06; Past Chair April 2006-present; Member May 2003-2005.
5. Member of the IEEE CIS Bioinformatics and Bioengineering Technical Committee (BBTC), March 2005 - Dec 2006.
6. Founder of the IEEE/South-East-Michigan "Women in Engineering" Affinity Group, November 2004 - December 2006.
7. Track Chair "Large Scale Systems", and Session Chair on "Biologically Inspired Integrated Circuits and Systems," for the IEEE/MWSCAS Conference, 2006.
8. Session Chair on "Pattern Recognition Classifications," for the IEEE/International Symposium on Computers and Communications (ISCC); 2006.
9. Member of the Advisory Committee for the IEEE/MWSCAS 2004 (Hiroshima), 2005 (Cincinnati), 2006 (Puerto Rico); and 2007 (Montreal, Canada).
10. Chair of the IEEE/SEM CHAPTER-I, 2000-to-Present. CHAPTER-I of the IEEE Region-4 South-East Michigan (SEM) Section consists of the IEEE Chapters for: Circuits and Systems(CAS), Signal Processing(SPS), and Information Theory (IT) Societies. Vice-Chair for 1996-99.
11. President, Future Symposia Committee, for the IEEE Midwest Symposium on Circuits and Systems (MWSCAS) 1998- Present
12. IEEE Service Award Recipient. IEEE South East Michigan Section (IEEE/SEM), 2003.
13. Member of the Steering Committee for the IEEE/MWSCAS 1996-present; Member of the Organizing Committee, 2001 and 2003.
14. Track Chair for the IEEE MWSCAS, "Biometrics, Biomedical and Bio-Informatics Systems" IEEE Midwest Symposium on Circuits and Systems, 2002-2003.
15. Member of the Technical Program Committee for the IEEE Computer Society International Conference on Microelectronics System Education (MSE) Conference, 2003, 2001, and 1999.
16. Member of the Steering Committee 1996-2002, and Member of the Technical Program Committee, for the IEEE International Conference on Electronics, Circuits and Systems (ICECS): 2001-2002. Topic(s) Chair at the IEEE/ICECS2002, For "Neural Networks" and "Control Systems."
17. Technical Program Chair for Intelligence Exploitation in Microsystems for the IEEE Midwest Symposium on Circuits and Systems in 2001
18. Technical Program co-Chair for the IEEE Midwest Symposium on Circuits and Systems 2000 and 2001.
19. National Award Winner: National Academy of Sciences (NAS)/National Research Council (NRC)/ US Air Force Office of Scientific Research (AFOSR), 2001 and 2000.
20. General Chair for the FIRST Workshop on "Collaborative Technologies for Creative Integrated Systems," AFRL/Information Institute, at the Meadow Brook Hall, Oakland University, November 1999.
21. Member of the CSAB Accreditation Team, and Program Evaluator (PE) for the Computer Science Accreditation Commission (CSAC)/ Accreditation Board (CSAB), 1996 - 2000.
22. Graduate of the Summer Institute for Women in Higher Education Administration, Bryn Mawr, Pa, 1998.
23. Member, Technical Program Committee for the IEEE Great Lakes Symposium on VLSI, 1997-1998.
24. Associate Editor, SIMULATION Journal, Society for Computer Simulation, on "VLSI and Circuit Simulation", 1992-99.
25. Chair and Organizer of Technical Sessions at:
    - IEEE Midwest Symposium on Circuits and Systems, 1992 -to- 2006.
    - IEEE Custom Integrated Circuits Conferences, CICC, 1983 - 1988
    - International Conference on Microelectronics, ICM'91
    - International Computer, Electronics, Communication and Control Conference, IASTED, CECC'91
26. General Chair, Organizer and Editor of the Educational Program for the IEEE Custom Integrated Circuits Conference CICC 1988.

27. Natural Science and Engineering Research Council of Canada, (NSERC), Research Associate, University of Waterloo, Ontario, Canada, 1980 - 1981

28. NSERC and National Research Council of Canada (NRC) Graduate Fellowship, 1975 - 1978.

29. Ain Shams University, Faculty of Applied Mathematics, Academic Excellence Scholarship, 1972 - 1973.

30. Cairo University, Faculty of Engineering, Excellence in Academic Achievement Scholarship, continued based on merit for five years, 1967 - 1972.

31. First Class Honors, B.A.Sc. in EE, 1972.

32. Distinguished Female Student of the Year Award, Cairo University, Faculty of Engineering, received twice, 1971 and 1972.

AWARDS: RESEARCH GRANTS AND CONTRACTS ($100K/year)recent average [1] [2]

1. Air Force Research Labs (AFRL) and IDCAST with RNET Technologies, Inc., *"Custom Designed Reconfigurable Read-out Chip Module Photonic Imager System."* (**Co-PI**), 2007-2008, **$ 60,000.00**

2. AFRL/Computer Engineering Research Consortium (CERC), *"Graphite Mesh for Optical Computing,"* FA8650-04-2-4201, TASK-10, 2006-2007, **$ 38,284.00**

3. Equipment Grant,AFRL/Information Directorate (IFTA), Chemical Sensor *CYRANOSE-320*, 2006-present, **$ 8,000.00.**

4. Research Grant/Contract from the AFRL/IFTA, UDRI, Subcontract No. RSC04025, "TASK 1 Extension: Bioinspired/Biocomputing Architecture Development for UAV's: TASK1B: *BioInspired Spiking Neural Network Chip for Mixed Pattern Discrimination from a BioPhotonic Sensor Array."* **HSA PI**, 2006-2008, **$ 60,000.00**

5. NSF/NIH Travel Grant,for BIOMAPS/NIH Sloan Foundation's "BioMaPS NIH Short course on Biological Development", Rutgers University, NJ, May 2006, **$ 500.00**

6. Research Excellence Fund (REF, The State of Michigan, OU/SECS *"biological and Bio-Inspired Intelligent Signal Processing and Perception."*, 2005-06, **$ 27,000.00**

7. Air Force Computer Engineering Research Consortium, AF/CERC # FA8650-04-2-4201 Number SC191 TASK #1B, *Polymorphic Bio-Inspired Intelligent Information Processing (IIP)*, **HSA PI**, 2005 - 2006, **$ 234,185.00.**

8. Equipment Grant: Air Force Research Laboratory/Information Directorate, FPGA Advanced System for "VIRTEX-II PRO," 2004, **$ 4,695.00**

9. The Metal Oxide Semiconductor Implementation System (MOSIS) and American Microsystems Inc. (AMI), funding for student's projects fabrication on Silicon Chips, grant no. 2666-MEP-INS, for Introductory and Advanced VLSIC Designs. **PI and MOSIS Liaison**, 2003-2004, **$ 11,700**

10. Aerospace Sensor Component and Subsystem Investigation and Innovation-2 Component Exploration and Delivery (ASCSII-2 CED), AFRL/SBIR With SYSTRAN Federal Corporation, *"Reconfigurable Bio-Inspired Intelligent System on a Chip Architectures for Aerospace."* Air Force and Systran Federal Corporation, TASK 5, **HSA PI** 2003- 2005, $ 50,000, to OU, **$ 39,700**

11. Missile Defense Agency (MDA)/AFRL, Small Business Technology Transfer (STTR) With Williams-Pyro Inc. **HSA Co-PI** *"Embedded Data Driven Prognosis Systems."* 2003, $ 70,000, OU, **$ 31,502**

[1] PI: Principle Investigator

[2] Hoda S. Abdel-Aty-Zohdy is abbreviated as HSA

12. The Air Force Research Laboratory/Information Directorate VFRP, 2003 *"Signal Perception and Processing with Bio-Inspired Sub-Micron Systems using: Spiking Networks for Bio-Chemical Detection."* Contract number: 28459, **HSA PI**, **$ 25,000**

13. Research Excellence Fund, The State of Michigan, *"Bio-Inspired Intelligent System(s)-On-a-Chip."* **PI**, 2003- 2004, **$ 5,500**

14. AFRL/Materials and Manufacturing Sensors Directorate, *"Modelling of 3-D Exploratory Three-Terminal Carbon Fiber Diffraction modulator Device."*, 2002-2003,**HSA PI**, **$ 8,800**

15. Research Excellence Fund (REF), The State of Michigan, "Mentor Graphics VLSIC/Microsystems on-Chips for Education and Research at Oakland University." 2002-2003 **HSA PI**, 2002-2003, **$ 5,500**

16. The Air Force Research Laboratory/Information Directorate, "Information Extraction via Perception Decision Trees from Bio-memory Units". Extension to Grant No. F30602-02-M- V030, **HSA PI**, 2002, **$ 10,000**

17. The National Academy of Sciences, National Research Council, "Bio-Chemical sensor Development and Intelligent Information Perception and Processing with Bio-Inspired Systems," **HSA PI**, 2002, $ 23,800

18. The Air Force Research Laboratory Information Directorate, Visiting Faculty Research Program Award (VFRP), *"Intelligent Information Perception via Bio-Inspired Systems for Electronic-Nose."*, Grant No. F30602-02-M-V030, 2002, **$ 18,650**.

19. AFRL/PRDA, WPAFB- Sensors Directorate (SND), *"Integrated Circuits and Systems for Solving BIo-Chemical Sensor Development and Detection Problems,"* **HSA PI**, 2001-2002, **$ 15,234**

20. National Academy of Sciences (NAS)/National Research Council (NRC)/ US Air Force Office of Scientific Research Summer Faculty Fellowship Award *"New Algorithms and Hardware Implementation for Intelligent Information Processing (IIP) using Neural Nets and Genetic Algorithms,"* 2001, **$ 23,800**

21. Air Force Research Laboratory/Information Institute, "Enhanced Intelligence of VIGILANTE," extension to "Multilevel Information Fusion by an adaptive Mixed-Signal NN for Improved Command, Control, Communications, Computer Intelligence, Surveillance and Reconnaissance (C4ISR)," **HSA PI**, 2001=2002, **$23,815**.

22. NAS/NRC/AFOSR Summer Faculty Fellowship Award. "Dimensional Analysis and Modelling, Applied Towards High Speed Micro-System Integration." 2000,**$ 10,880**.

23. Air Force Research Laboratories, Information Institute, AFRL/II, "Multilevel Information Fusion by An Adaptive Mixed-Signal Neural Network for Improved C4ISR Systems Integration" 1999-2000, Grant No. F33615-96-2-1945, PRDA, Task #17, **HSA PI** for *"Real-time GA Neural Net Sensor Fusion"* , **$ 110,000**

24. Air Force Research Laboratories/ Information Institute/IFTA, *"Collaborative Technologies for Creative Integrated Systems"* 1999-2000, No. F33615-96-2-1945, PRDA, General Chair, and co-founder of this FIRST workshop on **Collaborative Technologies.** , 1999-2000, **$10,000**

25. United States Aid for Foreign Research Coordinating Unit (USAID/FRCU), "Total Production and Quality Control in Metallic Industry using Computer-Based Techniques", **Co-PI** "Design and implementation of custom electronic chips for digital control, signal conditioning and interface", 1999-2001, **$ 50,000**.

26. Research Excellence Fund, State of Michigan, REF, "Radio Frequency Transceivers for: (1) Assembly Plant Automated Vehicle Identification, and (2) Electrical Retinal Stimulation Chip.", **PI** , 1999-2000, **$ 4,100**.

27. Research Excellence Fund, State of Michigan, REF, "Artificial Neural Networks in Industrial Applications," **HSA PI**, 1998 - 1999, **$ 3,000**.

28. Michigan Space Grant Consortium, Research seed grant, "Research on Micro-Electro-Mechanical Systems (MEMS) in Automotive and Space Applications," **HSA PI**, 1997-1998, **$ 8,000**

29. Research Excellence Fund, State of Michigan (REF), "Micro-Electro-Mechanical Systems (MEMS) Implementation," **HSA PI**, 1997-1998.

30. Faculty Research Fellowship, Oakland University, "Integrated Circuit Neural-Networks for Pattern Recognition in Gas Sensors," **HSA PI**, 1996, **$6,500.**

31. Research Excellence Fund (REF), State of Michigan, "Application of MCM Technology to Automotive Power-Train Systems", **HSA PI**, 1995-1996, **$ 20,000.**

32. FANUC, "Micro-Electro-Mechanical Systems (MEMS): Laboratory and Technology Requirements", **HSA PI**, 1996. **$ 1,000.**

33. Advanced Research Projects Agency, ARPA. The University of Michigan, Center for Integrated Sensors and Circuits. *" Research on power management integrated circuits for smart interface with an environmental sensor cluster"*, 1995, **$ 25,000**.

34. United States Agency for International Development, USAID, 1995, **HSA PI**, 1995, **$ 1,500**

35. NSF/SBIR with WLM Associates and ITT. "Application of MCM Technology to Ground Vehicle Antiskid Brake and Traction Control Systems", **HSA PI**, 1994 - 1995, $ 95,000, my share, **$ 6,000.**

36. United States Agency for International Development Grant. "Program Development and Verification: VLSI/ULSI Error Detection and Design Verification", **HSA PI**, 1993 - 1995, **$ 10,250**.

37. Research Excellence Fund, State of Michigan, REF. "Hardware Implementation of Neural Networks for Real-Time Pattern Recognition and Industrial Applications", **HSA PI**, 1992 - 1993, **$ 18,000.**

38. Texas Instruments, Equipment Grant . "Silicon-on-Sapphire", **HSA PI**,1984, **$ 6,000**.

39. Office of Naval Research Laboratories (ONR). "Self- Aligned SOS Junction Field Effect Transistors," **HSA PI**, 1983 - 1985, Contract No.N00014-83-K-2012, 1983-85, **$44,000**

PATENTS:

1) Invention Disclosure AFD 834, "Smart power management of lead-acid storage battery using the static and dynamic impedance involving intercalated graphite with sulfuric acid," with R. Ewing and F. L. Vogel, August 2005.
(2) Disclosure and record of inventionAFD668, "Modular, Digital, Stochastic Spiking Neural Network Architecture," with J. Allen and R. L. Ewing 2003.
(3) Pending Application: "Actuators with Smart Carbon Fiber" with L. Vogel and R. Ewing, WPAFB.
(4) Invention Disclosure, and record, "RF Resonating Polymer E-Nose," AF form 1279, with A. Ferendeci (The U. of Cincinnati), M. Mah and R. Ewing,(WPAFB) 2003.

PUBLICATIONS

PRINCIPLE RECENT PUBLICATIONS:, (out of 169)

1. Hoda S. Abdel-Aty-Zohdy, "Bio-Inspired Hybrid Integrated Chips," Invited paper at the **International Workshop on BIOTRONICS**, Big Island, Kona, Hawaii, 2007.

2. Hoda S. Abdel-Aty-Zohdy, Invited Chapter, the "BIOTRONICS" book by SPIE, on "Bio-Inspired Hybrid Integrated Chips," accepted, to be published 2008.

3. Jacob N. Allen, Hoda S. Abdel-Aty-Zohdy, and Robert L. Ewing, "A Compact Correlation Filter For On-Chip Learning in a Spiking Neural Network," **Proceedings of the IEEE/MWSCAS 2006**, paper #3404, 1-4244-0173-9/06/ 2006 IEEE. 5-pages, August 2006.

4. Hoda S Abdel-Aty-Zohdy, Mostafa Hashem Sherif, and Adam Smiarowski,Jr, "Three Bio-Inspired Approaches to Telecommunications Defect-Tracking and Reliability-Estimation," **Proceedings of the IEEE/MWSCAS 2006**, Paper # 3422, 1-4244-0173-9/06/2006 IEEE, 5-pages, August 2006.

5. F. Lincoln Vogel, Hoda S. Abdel-Aty-Zohdy, and Robert L. Ewing, "Dynamic PECT Effect for Nanotransducers and Hybrid Devices," **Proceedings of the IEEE/MWSCAS 2006**, Paper #3423, 1-4244-0173-9/06 2006 IEEE, 5-pages, August 2006.

6. Robert L. Ewing, Hoda S. Abdel-Aty-Zohdy, and J. R. Morrison, "Polymorphic Architecture for an Electronic Nose (eNose)" **Proceedings of the IEEE/MWSCAS 2006**, Paper # 3425, 1-4244-0173-9/06/ 2006 IEEE, 5-pages, August 2006.

7. Adam Smiarowski, Jr., Hoda S. Abdel-Aty-Zohdy, Mostafa Hashem Sherif*, and Hemal Shah, "Wavelet Based RDNN for Software Reliability Estimation," Proceedings of **The IEEE International Symposium on Computer Communications, ISCC06**, pp. 312-317, 1530-1346/06 2006 IEEE, June 2006.

8. Hoda S Abdel-Aty-Zohdy, "Bio-Inspired Integrated Chips," Presentation and Government Publication, the **Bio-Photonic-Nano-Computing Conference: "Bio-Photonic and Hybrid Devices"**, June 2006.

9. Jacob N. Allen, Hoda S. Abdel-Aty-Zohdy, and Robert L. Ewing, "Introducing RapidHDL: A New Library to Design FPGA Hardware in Microsoft .Net and Automatically Generate Verilog Netlists," **Proceedings of the IEEE International Conference on Electro/Information Technology,** pp.307-312, 10.1109/EIT.2006.252153, May 2006.

10. Didimo Garcia Neto and H. S. Abdel-Aty-Zohdy, , "Molecular Dynamics Simulation of bR and O States of Bacteriorhodopsin," **Proceedings of the Meeting of the Minds XIII Journal** for U/G Research, Vol. 7, pp. 206-209, 2005, Journal published January 2006.

11. Hemal Shah, Hoda S. Abdel-Aty-Zohdy, and M. Hashem Sherif, "Novel Usage of Wavelet Basis in RDNN for Telecommunication Applications," **Proceedings of the IEEE MWSCAS 2005**, pp. 1915-1919, 0-7803-9197-7/05 2005 IEEE. August 2005. Accepted for Publication in the **Kluwer Analog Journal 2007 Award Winning Paper in the Student Competition**.

12. Purvi Teli, H. S. Abdel-Aty-Zohdy, L. F. Vogel, and R. L. Ewing , "Transconductance Circuit Model of PECT Effect Device for a Smart Battery", **Proceedings of the IEEE MWSCAS 2005**, pp.1279-1282, 0-7803-9197-7/05 2005 IEEE, August 2005.

13. Dan O'Rourke and H. S. Abdel-Aty-Zohdy, , "An Operational Transconductance Amplifier in 0.18um SOI", **Proceedings of the IEEE MWSCAS 2005**, pp. 5-8, 0-7803-9197-7/05 2005 IEEE, 2005. Accepted for Publication in the **Kluwer Analog Journal 2007**

14. Didimo Garcia Neto and H. S. Abdel-Aty-Zohdy, "Energy Diffusion Model of bR for Voxel Identification," **Proceedings of the IEEE MWSCAS 2005**, pp. 1294-1297, 0-7803-9197-7/05 2005 IEEE, August 2005.

15. Jacob N. Allen, H. S. Abdel-Aty-Zohdy, and Robert L. Ewing, "Plasticity Recurrent Spiking Neural Networks for Olfactory Pattern Recognition", " **Proceedings of the IEEE MWSCAS 2005**, pp. 1741-1744, 0-7803-9197-7/05 2005 IEEE, August 2005.

16. Linda Murphy, H. S. Abdel-Aty-Zohdy, and Robert L. Ewing, "A Genetic Algorithm Tracking Model For Product Deployment in Telecom Services," **Proceedings of the IEEE MWSCAS 2005**, pp. 1729-1732, 0-7803-9197-7/05 2005 IEEE, 2005.

17. R.L. Ewing, H.S. Abdel-Aty-Zohdy, F. Schuermeyer, L. Liou, J.B. Moncrief, M. Rubeiz, and M. Williamson, " Exploring the Bio-Computing Frontier," **Proceedings of the IEEE MWSCAS 2005**, pp. 770-773, 0-7803-9197-7/05 2005 IEEE, 2005.

18. A. J. Brower, R. L. Ewing, R. W. Brower, and H. S. Abdel-Aty-Zohdy, " Spice for Modeling Biochemical Networks." **Proceedings of the IEEE MWSCAS 2005**, pp. 491-494, 0-7803-9197-7/05 2005 IEEE, 2005.

19. Hoda S. Abdel-Aty-Zohdy, "Biological and Bio-Inspired Technologies for Intelligent Signal processing," **INVITED Tutorial Paper at the IEEE/IEE International Conference on Telecommunications**, ICT2005, ISBN: 0-9584901-3-9, paper: 846, Proceedings and Tutorial Presentation, Cape Town, South Africa, May 2005.

20. Hemal Shah and Hoda S. Abdel-Aty-Zohdy, "Wavelet based Recurrent Dynamic NN for Defect Tracking in Telecommunication Services," **/CD Proceedings of the International Conference on Telecommunications, ICT2005, ISBN: 0-9584901-3-9, 6-pages** paper No.520, Cape Town, South Africa, May 2005.

21. J. N. Allen, H. S. Abdel-aty-Zohdy, and R. L. Ewing, "Electronic Nose Inhibition in a Spiking Neural Network for Noise Cancellation," **Proceedings of the 2004 IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology, CIBCB**, pp. 129-133, ISBN: 0-7803-8728-7, October 2004.

22. H. S. Abdel-Aty-Zohdy, J. N. Allen and R. L. Ewing, "Plastic NNs for BioChemical Detection," Proceedings of **The IEEE International Symposium on Circuits and Systems, ISCAS2003**, vol. V, pp. 665-668, 0-7803-7762-1/032003 IEEE, and Presented in Bangkok Thailand, May 2003.

23. A. Patel, T. Terry and H. S. Abdel-Aty-Zohdy, "Analysis and Implementation of an Analog Multiplexer in Time Domain," Proceedings of the **Meeting of the Minds Journal of Undergraduate Research,** pp. xx-xx+5, 2003.

24. R. L. Ewing and H. S. Abdel-Aty-Zohdy, "Paradigm of Design for Biosystem-On-A-Chip (BioSoC)," Proceedings of **the IEEE International Conference on Microelectronics Education, MSE03**, pp.154-155, 0-7695-1973-3/03 2003 IEEE , June 2003.

25. H. S. Abdel-Aty-Zohdy, Invited Keynote at the **IEEE European Conference on Circuit Theory and Design,"** ""Embedded Bio-Inspired Systems for Cognitive Decisions," Krakow, Poland, September 1st, 2003.

26. R. Ewing, H. S. Abdel-Aty-Zohdy, L. Liou, and J. B. Moncrief, "Exploring the BioComputing Frontier," **Proceedings of the IEEE MWSCAS 2003**, Vol. 1, pp. 428 - 431, 10.1109/MWSCAS.2003.1562310, December 2003.

27. C. Purdy, S. Neaderhouser, H. S. Abdel-Aty-Zohdy, and R. Ewing, "Biomolecular Computing Paradigms," **Proceedings of the IEEE MWSCAS 2003** Vol. 1, pp.420 - 423, 2003.

28. F. Ellicy and H. S. Abdel-Aty-Zohdy, "Application of Novel Hierarchical Approach to Formal Verification of Digital ICs," **Proceedings of the IEEE MWSCAS 2003**, Vol. 1, pp. 182 - 184, 10.1109/MWSCAS.2003.1562248, December 2003.

29. Marc Karam, Mohamed Zohdy, and Hoda S. Abdel-Aty- Zohdy, "A Modular Recurrent Dynamic Neural Network for Robust Optimal Control, **Journal of Control and Intelligent Systems**, V 31, No.3, pp. 160-172, 2003.

30. M. Al-Nsour and H. S. Abdel-Aty-Zohdy, "Four-Quadrant Analog MOS Multiplier with Wide Input Range," In Press (2003) for publication in the **International Journal of Electronics**.xxxxxxxxxxxxxxxx

31. Hoda S. Abdel-Aty-Zohdy and Robert L. Ewing, "Multidisciplinary Collaborative Methodology for System-of-Systems (SoS)," Refereed Proceedings of the **The 2003 International Symposium on Collaborative Technologies and Systems, pp.191-195**, January 2003
, Orlando Florida,

32. M. Sharawi, J. Quinlan, and H. S. Abdel-Aty-Zohdy, "A Hardware Implementation Approach of Genetic Algorithms for Measurements Characterization," Proceedings of the **9th IEEE International Conference on Electronics, Circuits and Systems (ICECS2002)**, pp. 1267-1270, September, 2002.

33. Hoda S. Abdel-Aty-Zohdy and Robert L. Ewing, "Signal Perception and Processing with Bio-Inspired Sub-Micro-Systems," Published in the Proceedings of the **IEEE MidWest Symposium on Circuits and Systems, Vol. III, pp.621-624**, August 2002.

34. J. N. Allen, H. S. Abdel-Aty-Zohdy, R. L. Ewing, and T. S. Chang "Spiking Networks for BioChemical Detection," Proceedings of the **IEEE MidWest Symposium on Circuits and Systems, Vol. III, pp.129-132**, August 2002.

35. Robert L. Ewing, Hoda S. Abdel-Aty-Zohdy, and J. B. Moncrief, "Polymorphous Computing Applied to the Electronic Nose Architectures," Proceedings of the **IEEE MidWest Symposium on Circuits and Systems, Vol.I, pp.525-528**, August 2002.

36. Apurve Patel, Tara Terry, and Hoda S. Abdel-Aty-Zohdy, "Analog Multiplexing in Time Domain for Biochemical Measurements Processing," Proceedings of the **IEEE MidWest Symposium on Circuits and Systems, Vol.I, pp.60-63**, August 2002.

37. Deepak Gantla, Hoda S. Abdel-Aty-Zohdy, and Robert L. Ewing "New Genetic Algorithm Approach for Dynamic Biochemical Sensor Measurements," Proceedings of the **IEEE MidWest Symposium on Circuits and Systems, Vol.I, pp.52-55**, August 2002.

38. Hoda S. Abdel-Aty-Zohdy, Robert L. Ewing and Gary B. Lamont, "Multidisciplinary Biotechnology Domains for Physical Sensors and Detectors." Proceedings of the **IEEE 4th European Workshop on Microelectronics Education, EWME2002, pp. 137-140,** Spain, May 2002.

39. H. S. Abdel-Aty-Zohdy, R. L. Ewing, M. C. Mah, and L. Liou, "Integrated Circuits and Systems for Bio-Chemical Sensing and Detection," **ASEE NCS Spring Conference**. 12 pages, April 6, 2002.

40. H. S. Abdel-Aty-Zohdy, "Embedded Intelligent Information Perception (IIP) System for Detection of BioChemical Vapors (Electronic Nose)." **AFRL Information Institute 5th Anniversary Workshop, AFRL Rome, NY,** Poster documentation and presentation, January 8-9, 2002.

41. H. S. Abdel-Aty-Zohdy, R. L. Ewing, and G. B. Lamont, "Multidisciplinary Biotechnology Domains for Physical Sensors and Detectors," **IEEE 4th European Workshop on Microelectronics Education,** pp.x-x+4, Spain, May 2002.

42. Hoda S. Abdel-Aty-Zohdy and M. Al-Nsour, "Analog Computational Circuits For Neural Network Implementations," **The Analog**

    Integrated Circuits and Signal Processing: International Journal, to appear 2002.

43. R. L. Ewing, H. S. Abdel-Aty-Zohdy, and G. B. Lamont, "Multidisciplinary Collaboration Methodology for Smart Perception System-On-A-Chip (SOC)," **Analog Integrated Circuits and Signal Processing: International Journal. vol. 28, No. 2, pp.179-190,** August 2001.

44. A. Hiasat and H. S. Abdel-Aty-Zohdy, "Semi-Custom VLSI Design and Implementation of a New Efficient RNS Division Algorithm," **The Computer Journal,** vol.42, No.3, pp. 232-240, June 1999.

45. Hoda S. Abdel-Aty-Zohdy and John Purcell, "Compact High Gain CMOS Op Amp Design Using Comparators," **Analog Integrated Circuits and Signal Processing: International Journal**, vol.19, no.2, pp. 139-144, May 1999.

46. M. Al-Nsour and H. S. Abdel-Aty-Zohdy, "Simple Low Power Analogue MOS Voltage Adder," **IEE Electronics Letters, vol.35, no.7,** pp.552-553, April 1999.

47. M. Karam, M. Zohdy, and Hoda S. Abdel-Aty-Zohdy, "Robust Recurrent Dynamic Neural Network For Solving Linear and Nonlinear Signal Representation Problems," **International Journal of Systems Science, vol.30, no.3,** pp. 261-274, March 1999.

48. A. Hiasat and H. S. Abdel-Aty-Zohdy, "Combinational Logic Approach for Implementing Improved Squaring Function," **IEEE Journal of Solid-State Circuits, vol.34, no.2**, pp. 236-240, February 1999.

49. Hoda S. Abdel-Aty-Zohdy, and Mohamed A. Zohdy, "Neural-Networks: Self-Organizing Feature Maps," Invited Article for **John Wiley Encyclopedia of Electrical and Electronics Engineering, vol. 18,** pp. 767-772, February 1999.

50. Hoda S. Abdel-Aty-Zohdy, "Microsystems Embedded Neural Networks and Genetic Algorithms for Intelligent Information Processing," Invited keynote, **The 6th IEEE Symposium on Computers and Communications**, Hammamet, Tunisia, July 3-5, 2001.

51. M. Al-Nsour and H. S. Abdel-Aty-Zohdy, "MOS Fully Analog Reinforcement Neural Network Chip," **2001 IEEE International Symposium on Circuits and Systems Proceedings,** ISCAS2001, Vol.III, pp.273-240, 2001.

52. R. L. Ewing and H. S. Abdel-Aty-zohdy, "Domain Distributed Intelligent Processing for Information Fuselets," **2001 IEEE International Symposium on Circuits and Systems Proceedings,** vol.III, pp.640-643, 2001.

53. H. S. Abdel-Aty-Zohdy and R. L. Ewing, "Intelligent Information Processing using Neural Networks and Genetic Algorithms," **Proceedings of the IEEE MWSCAS2000**, pp.xx-xx+6, August 2000.

54. M. Al-Nsour and H. S. Abdel-Aty-Zohdy, "Analog Computational Circuits for Neural Network Implementation," Proceedings of **The 6th IEEE International Conference on Electronics, Circuits and Systems** Vol.1, pp. 299-302, Cyprus, September, 1999.

55. Hoda S. Abdel-Aty-Zohdy and Mahmoud Al-Nsour, "Reinforcement Learning Neural Network Circuits for Electronic Nose," **IEEE International Symposium on Circuits and Systems, ISCAS99,** vol.V, pp. 379-382, May-June 1999.

56. Hoda S. Abdel-Aty-Zohdy and Mahmoud Al-Nsour, "Digital Neural Processing Unit for Electronic Nose," Proceedings of the **IEEE 9th Great Lakes Symposium on VLSI**, pp.236-237, March, 1999.

57. H. S. Abdel-Aty-Zohdy, "Radio Frequency Related Identification (RFID) for Assembly Plant Automated Vehicle Identification (AVI)," Proceedings of the **4th Chrysler Quality & Reliability Symposium,** pp. 79 - 84, CTC, 1998.

58. M. Al-Nsour and H. S. Abdel-Aty-Zohdy, "Implementation of Programmable Digital Sigmoid Function Circuit for Neuro-Computing," **Proceedings of IEEE Midwest Symposium on Circuits and Systems,** pp.571-574, August 1998.

59. F. El-Licy and Hoda S. Abdel-Aty-Zohdy, "Verification System Interface for VLSI Combinational Circuits," **Proceedings of IEEE Midwest Symposium on Circuits and Systems**, pp.408-411, August 1998.

60. Hoda S. Abdel-Aty-Zohdy, "Microelectronic Systems Design: Educational Projects and Experiences," **Proceedings of the American Society for Engineering Education**, pp. 64 - 70, April, 1998.

61. Ahmad A. Hiasat and Hoda S. Abdel-Aty-Zohdy, "Residue to Binary Arithmetic Converter for the Moduli Set $(2^k, 2^k-1, 2^{k-1}-1)$," **IEEE Transaction on Circuits and Systems-II: Analog and Digital Signal Processing, vol. 45, no. 2,** pp. 204-209, February 1998.

62. H. S. Abdel-Aty-Zohdy, "Artificial Neural Network Electronic Nose For Volatile Organic Compounds," **IEEE Computer Society Press for the Eighth Great Lakes Symposium on VLSI**, pp. 122 - 125, February 1998.

63. M. A. Zohdy, M. Karam, and H. S. Abdel-Aty-Zohdy, "A Recurrent Dynamic Neural Network For Noisy Signal Representation," **The Neurocomputing Journal, vol. 17, Elsevier Science** , pp.77-97, November 1997.

64. Hoda S. Abdel-Aty-Zohdy, "Reinforcement Neural Learning With Application to Gas Sensors," Proceedings of the **40th IEEE 1997 MidWest Symposium for Circuits and Systems (MWSCAS)**, pp.1269 - 1273, August, 1997.

RECENT HONORS AND AWARDS:

- Technical program co-chair: IEEE/MWSCAS 2000, 2001.
- Member of the Technical program committees: IEEE ICECS, CICC, Microelectronics Education, GLSVLSIC.
- National Award Winner NAS/NRC/AFOSR Summer Faculty Fellowship, 2000 and also 2001.
- Oakland University Faculty Link Award FIVE times.

PROFESSIONAL DEVELOPMENT Last 5-Years:

- AFIT Workshop on "GPS Communication Systems," WPAFB, Dayton, OH, July 2001.
- NSF workshop on "Assembly and Packaging of Microelectronic Devices," San Jose State U., 1998.
- BRYN MAWR Summer Institute for **Women In Higher Education Administration**, Bryn Mawr, Pennsylvania, 1998.
- Participant in the Directors Conference: The Future of Honors Programs in Higher education, MBH, OU, May, 1998.
- Panelist: NSF review, Division of electrical and Communications Systems, Arlington VA, June 11, 1997. Arlington , VA.

CURRICULUM VITAE

PERSONAL

Daniel Nicholas Aloi
1440 Fawn Court
Rochester Hills, Michigan 48309

Home: 248-212-8325
Office: 248-370-2185
E-mail: aloi@oakland.edu

Citizenship: United States

EDUCATION

1999 Ph.D. in Electrical Engineering, Ohio University, Athens, Ohio.
Areas of Concentration: Electromagnetics, Antennas and Communications.
Dissertation: *"Development and Validation of a Mathematical Model to Investigate the Effects of Ground-Based Multipath"*

1996 M.S.E.E., Ohio University, Athens, Ohio.
Areas of Concentration: Electromagnetics and Avionics.
Thesis: *"Electromagnetic Analysis of Ground Multipath for Satellite-Based Positioning Systems"*

1992 B.S.E.E., Ohio University, Athens, Ohio (cum laude).
Areas of Concentration: Control Theory.

WORK EXPERIENCE

School of Engineering & Computer Science, Oakland University, Rochester, Michigan.
8/07-present **Associate Professor**

1/02-8/07 **Assistant Professor**

9/00-1/02 **Visiting Lecturer**

OnStar, Incorporated, Troy, Michigan.
6/00-1/02 **Sr. Project Engineer**

School of Electrical Engineering & Computer Science, Ohio University, Athens, Ohio.
6/99-6/00 **Visiting Assistant Professor**

Avionics Engineering Center, Ohio University, Athens, Ohio.
12/93-6/99 **Research Associate**

Rockwell Collins, Cedar Rapids, Iowa.
6/96-9/96 **Summer Intern**

EXTERNAL FUNDING HISTORY

Daimler Chrysler Research, Engineering and Design North America – Auburn Hills, Michigan
12/06-5/07 **Principal Investigator** **Funding Award: $48,909.00**
- Wireless Propagation Channel Characterization at 915 MHz and 2.5 GHz in a Parking Garage.

Daimler Chrysler – Auburn Hills, Michigan
12/06-5/07 **Principal Investigator** **Funding Award: $30,000.00**
- Developed short course on EE Systems Engineering Training that was delivered to 50 Daimler Chrysler Employees

Pulse Engineering – San Diego, California
9/07-9/10 **Principal Investigator** **Funding Award: $153,750.00**
- On-vehicle Antenna Measurement Research

Yokowo – Farmington Hills, Michigan
9/07-9/10 **Principal Investigator** **Funding Award: $135,000.00**
- On-vehicle Antenna Measurement Research

Nippon Antenna America – Farmington Hills, Michigan
9/07-9/10 **Principal Investigator** **Funding Award: $135,000.00**
- On-vehicle Antenna Measurement Research

Federal Aviation Administration - Satellite Program Office, Washington, DC
9/05-8/06 **Principal Investigator** **Funding Award: $50,000.00**
- Investigation into Radio Frequency Interference Mitigation via Antenna Beam forming Techniques.

National Science Foundation – 2005 Major Research Instrumentation, Washington, DC
10/05-10/07 **Principal Investigator** **Funding Award: $400,000.00**
- Acquisition of Automotive Antenna Measurement Instrumentation.

OnStar, Incorporated, Troy, Michigan
7/04-1/05 **Principal Investigator** **Funding Award: $34,300.00**
- Navigation Filter Development for Automotive Grade GPS Receivers.

Federal Aviation Administration - Satellite Program Office, Washington, DC
5/04-5/06 **Principal Investigator** **Funding Award: $300,000.00**
- Development of Dual-Frequency High Fidelity Antenna Model of the Integrated Multipath Limiting Antenna (IMLA) for Category-II/III Siting Criteria.
- Investigation in Radio Frequency Interference Mitigation via Antenna Beam-forming Techniques.

Sony Electronics, Incorporated, San Diego, California
9/02-8/03 **Principal Investigator** **Funding Award: $50,000.00**
- Performance Assessment of Sony's Next-Generation GPS Receiver.
- Investigation into Hybrid Positioning Techniques Incorporating Assisted GPS and EOTD.

OnStar, Incorporated, Troy, Michigan
7/02-1/03 **Principal Investigator** **Funding Award: $65,600.00**

- Characterization of RF Anechoic Chamber Accuracy for Antenna Pattern Measurements at the GPS L1 Carrier Frequency.
- Installation of Kinematic GPS Truth Reference System to be used for Position Accuracy Assessments of On-Vehicle GPS Receiver Performance.
- Development of a Bench-Level Test Plan to Evaluate GPS Receiver Performance via Programming of GPS Satellite Signal Simulator.

Federal Aviation Administration - Satellite Program Office, Washington, DC
2/03-1/04 **Principal Investigator** **Funding Award: $413,000.00**

- Development of a High Fidelity Antenna Model (HFAM) for the establishment of LAAS Cat-I Siting Criteria.
- Establishment of Differential GPS Reference Receiver Site at Oakland County Airport.

CONSULTING

Dr. Aloi has performed consulting activities for Harmen/Becker, OnStar, Inc., MI-SATS, WISI Automotive and General Dynamics in the areas of antenna and location technology.

TEACHING EXPERIENCE

School of Engineering and Computer Science, Oakland University
1/02-present **Assistant Professor**

1. EE 378, *Design of Digital Systems.*
   Text: M. Mano, Digital Design, Prentice Hall Publishing, Upper Saddle River, NJ 3rd Edition, 2002. (Fall 2002, Winter 2003, Winter 2004, Winter 2005, Summer 2006)

2. EE 450/550, *Satellite-Based Positioning Systems.* **(New Course)**
   Text: Elliott D. Kaplan, Understanding GPS: Principles and Applications, Artech House, February 1996. (Spring 2003, Fall 2004)
   Text: Global Positioning System: Signals, Measurments, and Performance, by Pratrap Misra and Per Enge, Editor: Ganga-Jamuna Press, Lincoln Massacusettes, 2001. (Fall 2005, Fall 2006)

3. EE 434/534, *Principles of Data Communications.*
   Text: W. Stallings, Data & Computer Communications, Prentice Hall Publishing, 5th Edition, 1997. (Fall 2000, Fall 2004)

4. EE 437, *Communication Systems*
   Text: B. P. Lathi, Modern Digital and Analog Communication Systems, 3rd ed., Oxford University Press, 1998. (Fall 2006)

5. SYS 317, *Engineering Probability & Statistics.*
   Text: R.A. Johnson, Miller & Freund's Probability and Statistics for Engineers, Prentice Hall Publishing, 6th Edition, 2000. (Winter 2001)

6. SYS 325, *Lumped Parameter Linear Systems.*

Text: K. Ogata, System Dynamics, 3rd Edition, Prentice Hall. (Spring 2001)

7. EE 326, *Electronic Circuit Design.*
   Text: Sedra/Smith, Microelectronic Circuits 4th Edition, Oxford University Press, New York, NY, 1998. (Fall 2001, Winter 2002, Winter 2003)

8. EE 445/545, *Electromagnetic Engineering.*
   Text: Balanis, C.A., Advanced Engineering Electromagnetics, Wiley, 1989
   (Winter 2004, Winter 2005, Winter 2006, Winter 2007)

9. EE 345, *Electromagnetics.*
   Text: Fawaz T. Ulaby, Fundamentals of Applied Electromagnetics, , 2001 Media Edition.
   (Winter 2004, Winter 2005)

10. EE 447/547, *Antenna Theory.* **(New Course)**
    Text: Kraus, D. and Marhefka, R., Antennas: For All Applications, Third Edition, McGraw Hill, 2002, New York, New York. (Winter 2006, Spring 2007)

School of Electrical Engineering and Computer Science, Ohio University
9/99-6/00 **Visiting Assistant Professor**

11. EE 443/543, *Electromagnetics I.* (Fall Quarter 1999)
    Text: Balanis, Advanced Engineering Electromagnetics, John Wiley & Sons, 1989.

12. EE 314, *Basic Electrical Engineering II.*
    Text: Paul, C.R., Nasar S.A. and Unnewehr L.E., Introduction to Electrical Engineering – Second Edition, McGraw-Hill, Inc., 1992. (Winter Quarter 2000)

13. EE 321, *Electromagnetics and Materials I.*
    Text: Inan, U.S. and A.S. Inan, Engineering Electromagnetics – Second Edition, Prentice Hall, Inc., 1999. (Spring Quarter 2000)

7/98-8/98 **Graduate Instructor**

14. EE 212, *Electrical Circuit Analysis III.*
    Text: Hayt, W.H. and Kemmerly, J.E., Engineering Circuit Analysis, McGraw Hill, 1993.
    (Summer Session II 1998)

PATENTS

1. **Daniel N. Aloi**, Stephen P. Schwinke, and Jeffrey M. Stefan, "Method and System for Determining a Navigating Vehicle Location," Assignee: General Motors, Patent #: 6,745, 124 B2, June 1, 2004.

2. Jeff Stefan, **Daniel N. Aloi** and Richard Kacel, "Method and System for Reducing For Reducing Maneuver Proximity Diameter For a Waypoint Navigation System," Assignee: General Motors, Patent #: 6,625,538 B2, September 23, 2003.

3. Jeff Stefan, Richard Kacel and **Daniel N. Aloi**, "Method and System for Reducing Shape Points for a Navigation System," Assignee: General Motors Patent #: 6,567,741 B1, May 20, 2003.

4. Jeff Stefan, Jasmin Jijina, Richard Kacel, **Daniel N. Aloi** and John Correia, "Method and System for Detecting Anomalous Road Geometry for a Navigation System," Assignee: General Motors, Patent #: 6,466,864 B1, October 15, 2002.

REFEREED JOURNALS

1. Mazen Alsliety and **Daniel N. Aloi**, "*Impact of Vehicle Platform on GPS System Performance in Automotive Applications*", I.E.E. Journal on Intelligent Transport Systems. (Accepted for publication)

2. Mazen Alsliety and **Daniel N. Aloi**, "*A Study of Ground-Plane-Level and Vehicle-level Radiation Patterns of GPS Antenna in Telematics Applications,*" I.E.E.E. Antennas and Wireless Propagation Letters, Volume 6, 2007, Page(s): 130-133. Digital Object Identifier 10.1109/TAES.2007.357129.

3. Mohammad Sharawi and **Daniel N. Aloi**, "*Null Steering Approach with Minimized PCV and GD for Large Aperture Vertical Antenna Arrays*," I.E.E.E. Antennas and Propagation, Volume 55, Issue 7, pp. 2120-2123. Digital Object Identifier 10.1109/TAP.2007.900272.

4. **Daniel N. Aloi** and Mazen Alsliety, "*A Methodology to Determine the Isolation Requirements Between Collocated GPS and Cellular Antennas in Telematics*," I.E.E.E. Antennas and Wireless Propagation Letters, Volume 6, 2007, Page(s): 1-4. Digital Object Identifier 10.1109/LAWP.2006.890744.

5. **Daniel N. Aloi**, Mazen Alsliety, and Dennis Akos, "*A Methodology for the Evaluation of a GPS Receiver Performance in Telematics Applications*," I.E.E.E. Transactions on Instrumentation and Measurements, Volume 56, Issue 1, February 2007, Page(s) 11-24. Digital Object Identifier 10.1109/TIM.2006.887190.

6. Mohammad Sharawi, Dennis Akos, and **Daniel N. Aloi**, "*GPS C/N0 Estimation in the Presence of Interference and Limited Quantization Levels*," I.E.E.E. Transactions on Aerospace and Electronic Systems, Volume 43, Issue 1, January 2007, Page(s): 227-238. Digital Object Identifier 10.1109/TAES.2007.357129.

7. **Daniel N. Aloi** and Alex Kornienko, "*Comparative Analysis of Kalman Filter and Double Exponential Filter for GPS-only Automotive Navigation in Urban Canyon Environments,*" I.E.E.E. Transactions on Vehicular Technologies, Volume 56, Issue 5, Part 2, Sept. 2007 Page(s):2880 – 2892. Digital Object Identifier 10.1109/TVT.2007.900396

8. **Daniel N. Aloi**, Andrew Rusek and Barbara Oakley, "*A Relative Technique for Characterization of PCV Error of Large Aperture Antennas Using GPS Data,*" I.E.E.E. Transactions on Instrumentation and Measurements, October 2005, Volume 54, Number 5, ISSN 0018-9456, pp. 1820-1832.

9. **Daniel N. Aloi** and Frank van Graas, "*Investigation into the Effectiveness of Ground Multipath Mitigation via Polarization Steering of Received GPS Signal,*" I.E.E.E. Transactions on Aerospace and Electronic Systems, April 2004, Volume 40, Number 2, ISSN 0018-9251, pp. 536-552.

REFEREED CONFERENCE PAPERS

1. Mohammad Sharawi and **Daniel N. Aloi,** "*Design of a Linearly Polarized Patch Antenna Using the MoM, FDTD, and FEM,*" 2007 IEEE AP-S International Symposium on Antennas and Propagation, Honolulu, Hawaii, USA on June 10-15, 2007

2. Mazen Alsliety and Daniel N. Aloi, "*A Study of the Radiation Pattern of a GPS Antenna on Several Vehicle Platforms,*" I.E.E.E. Electro/Information Technology Conference (EIT 2007), Chicago, Illinois, May 17-20, 2007.

3. **Mazen Alsliety** and Daniel N. Aloi, "*Signal Processing Choices and Challenges for SDR in Telematics,*" International Symposium on Signal Processing and its Applications 2007, 12 - 15 February 2007, Sharjah, United Arab Emirates (U.A.E.).

4. Mohammad Sharawi and **Daniel N. Aloi**, "*C/No Estimation in a GPS Software Receiver in the Presence of RF Interference Mitigation via Null Steering for the Multipath Limiting Antenna,*" I.E.E.E. GLOBECOMM 2006, 27 November – 1 December, 2006, San Francisco, California.

5. Mazen Sliety and **Daniel N. Aloi**, "*A Low Profile Microstrip Yagi Dipole Antenna for Wireless Communications in the 5 GHz Band,*" I.E.E.E. Electro/Information Technology Conference (EIT 2006), Lansing - Michigan, May 7-10, 2006.

6. Mohammad Sharawi and **Daniel N. Aloi**, "*Radio Frequency Interference Mitigation via Null-Steering for the Multipath Limiting Antenna in Local Area Augmentation Systems,*" I.E.E.E. Electro/Information Technology Conference (EIT 2006), Lansing - Michigan, May 7-10, 2006.

7. Oleksiy V. Korniyenko , Mohammad S. Sharawi and **Daniel N. Aloi**, "*Neural Network Based Approach for Tuning Kalman Filter,*" I.E.E.E. Electro/Information Technology Conference (EIT 2005), Lincoln - Nebraska, May 22-25, 2005.

8. Mohammad Sharawi and **Daniel N. Aloi**, "*An 800Mbps System Interconnect Modeling and Simulation for High Speed Computing,*" I.E.E.E. International Symposium on Circuits and Systems, Kobe, Japan, May 23-26, 2005.

9. Mazen Alsliety and **Daniel N. Aloi**, "*A Comparative Study for Computing Circular Polarization Gain,*" Applied Electromagnetic Computational Society, The 20th Annual Review of Progress in Applied Computational Electromagnetic, 19-23 April 2004, Syracuse, New York.

CONFERENCE PAPERS

1. Imad H. Elhajj, Hurong Fu, Adrian Padilla, and **Daniel N. Aloi**, "*Keyless Message Authentication by Verifying Position and Velocity for Inter-Vehicle Communication,*" Society Automotive Engineers 2006 World Congress, Detroit, Michigan, April 3-6, 2006.

2. Mohammad Sharawi and **Daniel N. Aloi**, "*Comparative Analysis of Two Null-Steering Approaches for the Multipath Limiting Antenna for LAAS,*" I.E.E.E. PLANS 2006/ION NTM 2006, Monterrey, CA. January, 12-15, 2006.

3. Mohammad Sharawi and **Daniel N. Aloi**, "*A 0.25 Micro-meter CMOS RF Front-End with a Low Cost Patch Antenna for GPS Receivers,*" 48th I.E.E.E. International Midwest Symposium on Circuits and Systems, Cincinnati, Ohio, August 7-10, 2005.

4. Bryce Thornburg, Mark Dickenson and **Daniel N. Aloi**, "*LAAS Multipath Limiting Antenna (MLA) Performance Testing and Analysis,*" Institute of Navigation, Institute of Navigation National Technical Meeting 2005, 21-24 January 2005, San Diego, California.

5. **Daniel N. Aloi**, "*Failure Mode Analysis of Multipath Limiting Antenna,*" Institute of Navigation, Institute of Navigation GNSS 2004, 21-24 September 2004, Long Beach, California. **(Best Paper Award)**

6. **Daniel N. Aloi,** Mazen Alsliety, and Sai Kiran, "*The Development and Validation of a High-Fidelity Electromagnetic Model of the Integrated Multipath Limiting Antenna,*" Institute of Navigation Annual Meeting 2004, 7-9 June 2004, Dayton, Ohio.

7. **Daniel N. Aloi**, Luke Fay, Matt Ronning and Matt Ronning, "*The Role of Bluetooth Equipped GPS Receiver in Intelligent Transportation Systems,*" Institute of Navigation 2003 Annual Meeting, Albuquerque, NM, June 23-25, 2003.

8. Mohammad Sharawi and **Daniel N. Aloi** , "*Investigation into the performance of EOTD for GSM users in Telematics Applications,*" Proceedings of the SPIE, Volume 5084. 21-25 April 2003. Gaylord Palms Resort and Convention Center. Orlando, Florida.

9. **Daniel N. Aloi** and Jeff Stefan, "*A Low-Cost GPS-Based Approach to Automotive Navigation,*" Institute of Navigation 2001 57th Annual Meeting & CIGTF's Guidance Test, Albuquerque, NM, June 11-12, 2001.

10. **Daniel N. Aloi** and Frank van Graas, "*Analysis of the Effects of Earth-Surface Based Multipath Reflections on GPS Code Phase Measurements,*" Institute of Navigation – Navigational Technology For The 21st Century, Cambridge, Massachusetts, June 28-30, 1999.

11. **Daniel N. Aloi**, "*Phase Center Variation (PCV) Determination of the Ohio University Dipole Array using GPS Data,*" Institute of Navigation GPS 1999, Nashville, Tennessee, September 14-17, 1999.

MAGAZINE ARTICLES

1. **Daniel N. Aloi**, Patrick E. Dessert, Luke Fay, Matt Ronning and Mike Willer, "*GPS Car Talk: Listening to Bluetooth,*" GPS World: Designing and Implementing Solutions With Global Positioning Technologies, September 2003, Volume 14, Number 9, pp 36-46.

2. Mohammad S. Sharawi and **Daniel N. Aloi**, *"Circuit modeling in High Speed Designs,"* I.E.E.E. Potentials Magazine, Vol. 24, No. 1, pp. 17-20, February/March 2005.

INDUSTRY PAPERS\REPORTS

1. **Daniel N. Aloi**, "*High Fidelity Antenna Model Development (HFAM) for Creation of CAT-I Siting Criteria,*" Final Report to Federal Aviation Administration Satellite Program Office, FAA Research Grant 2003-G-001 and FAA Cooperative Agreement 02-P0073.

2. **Daniel N. Aloi**, "Algorithm Development: Conversion of Dead-Reckoning Based GPS Position Estimates in Lat/Long Format to GPS PR Measurements," OnStar, Incorporated, Detroit, Michigan. [14 pages]

3. **Daniel N. Aloi**,"OnStar Radio Frequency Chamber Overview and Characterization," OnStar, Incorporated, Troy, Michigan. [67 pages]

4. **Daniel N. Aloi**,"Procedures to Perform a Drive Test Using the Ashtech GPS Truth Reference System," OnStar, Incorporated, Troy, Michigan. [37 pages]

5. **Daniel N. Aloi**,"GPS Simulator Scenario Development Strategy," OnStar, Incorporated, Troy, Michigan. [52 pages]

PUBLISHED PRESENTATIONS

1. **Daniel N. Aloi**, "Electromagnetic Analysis of Ground Multipath for Satellite-Based Navigation Systems," Quarterly Review Proceedings of the FAA/NASA Joint University Program, Massachusetts Institute of Technology, Cambridge, Massachusetts, September 26-27, 1996.

2. **Daniel N. Aloi**, "Local Area Augmentation System Antenna Ground Coverage," Quarterly Review Proceedings of the FAA/NASA Joint University Program, William J. Hughes FAA Technical Center, Atlantic City, New Jersey, January 23-24, 1997.

3. **Daniel N. Aloi**, "Multipath Limiting GPS Antenna Performance," Quarterly Review Proceedings of the FAA/NASA Joint University Program, Ohio University, Athens, Ohio, July 10-11, 1997.

4. **Daniel N. Aloi**, "Flight Test Demonstration Results of the Local Area Augmentation System (LAAS)," Quarterly Review Proceedings of the FAA/NASA Joint University Program, Massachusetts Institute of Technology, Cambridge, Massachusetts, October 9-10, 1997.

5. **Daniel N. Aloi**, "Analysis of Ground Multipath," Quarterly Review Proceedings of the FAA/NASA Joint University Program, William J. Hughes FAA Technical Center, Atlantic City, New Jersey, January 7-8, 1998.

6. **Daniel N. Aloi**, "Phase Center Analysis of the LAAS Integrated Multipath Limiting Antenna," Quarterly Review Proceedings of the FAA/NASA Joint University Program, NASA Ames Research Center, Moffett Field, California, June 29-30, 1998.

7. **Daniel N. Aloi**, "Phase Center Variation Test Results of the Multipath Limiting Antenna," Quarterly Review Proceedings of the FAA/NASA Joint University Program, National Air & Space Museum, Washington, D.C., January 7-8, 1999.

INVITED PRESENTATIONS

1. **Daniel N. Aloi**, "Automotive Antenna Measurement Instrumentation, " Presented to Advisory Board to the School of Engineering and Computer Science, Oakland University, Rochester, Michigan, River Crest Banquet Hall, December 9, 2005.

2. **Daniel N. Aloi**, "Overview of the Federal Aviation Administration's Local Area Augmentation System," Mechanical and Aeronautical Engineering Department, State University of New York at Buffalo, Buffalo, New York, April 7, 2005.

3. **Daniel N. Aloi**, "Physics-Electrical Engineering Aspects of the Global Positioning System," Physics Department, Saint Bonaventure University, Olean, New York, April 8, 2005.

4. **Daniel N. Aloi,** "The Development and Validation of High Fidelity Electromagnetic Models of the Integrated Multipath Limiting Antenna," Lulea Technological Institute, Lulea, Sweden, February 20, 2005.

5. **Daniel N. Aloi**, "An Overview of Certification Issues in Automotive Telematics," Society of Automotive Engineering, TOPTEC: Frontiers of Telmatic Systems in Automotive, April 20-21, 2004. MSU Management Education Center, Troy, Michigan.

6. **Daniel N. Aloi**, "An Overview of the Federal Aviation Administration's Local Area Augmentation System for Category I Approach\Landings," Sigma XI Luncheon Series, 128-130 Oakland Center, Oakland University, Rochester, Michigan, January 12, 2004.

7. **Daniel N. Aloi**, "Investigation into the Feasibility of Ground Multipath Mitigation Via Polarization Steering of the Received Signal," Electrical and Systems Engineering Department's Monthly Hour, Oakland University, Rochester, Michigan, December 4, 2002.

8. **Daniel N. Aloi**, "Ground Multipath Characterization for LAAS Reference Station Siting," Global Positioning System Laboratory, Stanford University, Stanford, California, February 24, 2004.

9. **Daniel N. Aloi**, "An Overview of the Ohio University Avionics Engineering Center's (AEC) Uninhabited Aerial Vehicle (UAV) Research Program,"

10. **Daniel N. Aloi**, "Ohio University's Unmanned Aerial Vehicle (UAV) Research Laboratory," Ohio University Institute of Electrical and Electronics Engineering Student Branch, Ohio University, Athens, Ohio, March 8, 2000.

OUTSIDE PROFESSIONAL SERVICE

1. Proposal Reviewer: National Science Foundation's International Research Fellowship Program (NSF 06-582), "*Reduction of Multipath Errors at Permanent Global Navigation Satellite System Reference Stations*" (Susan Parris).

2. Paper Reviewer: I.E.E.E. Transaction on Aerospace and Electronic Systems, September 2006. (TAES-200601951) "*Analysis Of Airborne GPS Multipath Using High-Fidelity EM Models*" (Associate Editor - Dr. Michael Braasch)

3. Proposal Reviewer: National Science Foundation's 2006 Major Research Instrumentation Program, August 2006. (061965) "*Acquisition of Instrumentation for RF Biomedical Applications*" (Dr. Rajinder J. Khosla)

4. Paper Reviewer: I.E.E.E. Transaction on Vehicular Technology, June 2005, (VT-2006-00013) "*On Estimating Relative Positions of Vehicles without GPS for Active Safety and Telematics*" (Associate Editor was Dr. Richard Klukas)

5. Paper Reviewer: Society of Automotive Engineers 2006 World Congress. "*A Neuro-Fuzzy Approach to a Machine Vision-Based Inspection Problem*" (John Miller)

6. Paper Reviewer: Society of Automotive Engineers 2006 World Congress. *"Simplifying the Approach to Specify and Measure Product Seal Integrity and Leak Tightness"* (John Miller)

7. Proposal Reviewer: National Science Foundation's 2006 Major Research Instrumentation Program, April 17-18, 2006, Washington, D.C., Lithography, Plasma, and Ion Etching, and Equipment Related to Device Fabrication (Dr. Rajinder Khosla – NSF Director).

8. Paper Reviewer for I.E.E.E. Signal Processing Letters, Manuscript: *"Inexpensive Upgrade of Base-Station Dumb-Antennas by Two Magnetic Loops for "Blind" Adaptive Downlink Beam-forming"*.

9. Key Technical Advisor to Satellite Program Office of the FAA
    a. LAAS Siting Working Group
    b. Multipath Modeling Working Group
    c. Technical Interchange Meetings (TIM)

10. *Session Chair*, Antenna Technology, Institute of Navigation GNSS 2004, September 21-24, 2004, Long Beach, California.

11. *General Chair*, Frontiers of Telematics Systems in Automotive, Society of Automotive Engineer's TOPTEC Conference, April 20-21, 2004. MSU Management Education Center, Troy, Michigan.

12. Paper Reviewer for I.E.E.E. Transactions on Vehicular Transportation Systems: Reviewed manuscript entitled, "A Novel Single Base Station Location Technique for Microcellular Wireless Networks: Description and Validation by a Deterministic Propagation Model" (September 2003).

13. Paper Reviewer for IEEE UWB Conference 2003: Reviewed 3 conference papers (August 2003).

14. *Session Chair*, Antenna Technology, Institute of Navigation GPS 2003, September 10-12, 2003, Portland, Oregon.

15. *Co-Session Chair*, Special Topics in Navigation, Institute of Navigation's 59th Annual Meeting, June 23-25, 2003, Albuquerque, New Mexico.

16. *Co-Session Chair* - Land, Mobile, E-911, Telecommunications, and Internet Applications of GPS, Institute of Navigation Annual Meeting 2001, Albuquerque, New Mexico.

17. *Session Chair* – Student Paper Competition, Institute of Navigation GPS 1997, Kansas City, Missouri.

PROFESSIONAL MEMBERSHIPS

1. Institute of Electrical and Electronics Engineers (IEEE)

2. Institute of Navigation (ION)

AWARDS

1. Oakland University New Investigator Research Excellence Award (April 18, 2007)

2. Oakland University Appreciation Event Honoree - In recognition and appreciation for work in regards to grants, contracts and sponsored research. (9 November 2006)

3. Best Session Paper Award at Institute of Navigation - GNSS 2004, 21-24 September 2004, Long Beach, California for paper entitled, "*Failure Mode Analysis of Multipath Limiting Antenna*".

4. Ninth Annual Faculty Recognition Luncheon Honoree at Oakland University.

5. Key Technical Advisor to the FAA Satellite Program Office's Local Area Augmentation System (LAAS) Program.

6. OnStar Award for Significantly Enhancing their GPS Laboratory Capabilities (December 2000).

7. Received General Motors Cost Suggestion Award of $25,000 for modifying a GPS antenna design that saved GM $178,000.00 (Primary Suggestor – November 2003).

8. 1999 G.E. Smith Award Recipient, Presented to the top Graduate Student within the School of Electrical Engineering and Computer Science, Ohio University, Athens, Ohio. (May 1999)

9. 1998 Lawrence County Historical Society's Sports Hall of Fame Inductee. Selected based on my Accomplishments as a Basketball Player in High School and College.

10. Selected First Team Academic All-Conference by the Mid-American Basketball Conference for my classroom and athletic achievements at Ohio University during the 1991-1992 men's basketball season.

11. Received Full Athletic Scholarship to play on the Men's Basketball Team at Ohio University, Athens, Ohio. (1989-1992)

GRADUATED MASTER'S STUDENTS

1. Alex Kornienko, "Investigation Into the Performance of GPS/EOTD Data Fusion," Master's Thesis, Department of Electrical and Systems Engineering, Oakland University, Rochester, MI, Graduation Date: August 2003, Role: Advisor.

2. Vivek Mahalingam, "Analysis of Microstrip GPS Patch Antenna Performance for Non-Vehicle and Vehicle Installations via the Commercial Off the Shelf Software Package FEKO," Master's Thesis, Department of Electrical and Systems Engineering, Oakland University, Rochester, MI, Graduation Date: July 2004, Role: Advisor.

GRADUATED DOCTORAL STUDENTS

1. Mazen Alsliety, "Performance Characterization and Correlation between Simulations and Measurements for Satellite Based Systems in Telematics," Department of Electrical and Systems Engineering, Oakland University, Rochester, MI, Graduation Date: June 2007, Role: Advisor.

2. Alex Korniyenko, "Filter Development for Low Cost Automotive Navigation Systems," Department of Electrical and Systems Engineering, Oakland University, Rochester, MI, Graduation Date: December 2006, Role: Advisor.

3. Mohammad Sharawi, "Radio Frequency Interference Mitigation Methods Applied to the LAAS Multipath Limiting Antenna for System Availability Improvement," Department of Electrical and Systems Engineering, Oakland University, Rochester, MI, Graduation: August 2006, Role: Advisor.