CURRICULUM VITAE

CONTACT INFORMATION

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EDUCATIONAL DEGREES/REGISTRATION

P.E. in State of Ohio, Registration Number PE 66926, since June 2002

Ph.D. Electrical Engineering, Ohio University, Athens, Ohio, Fall 1994 to Spring 1998, awarded in June 1998. Dissertation Title: "*Ranging Airport Pseudolite for Local Area Augmentation Using the Global Positioning System*".

M.S. Electrical Engineering, The Naval Postgraduate School, Monterey, CA, Fall 1986 to Summer 1987, awarded in August 1987; specialized in Communications Engineering. Thesis Title: "*Measured Noise Performance of a Direct-Sequence Spread-Spectrum System and a Comparison of Single-vice Dual-Channel Delay-Lock Loops*".

B.S. Electrical Engineering, The Pennsylvania State University, University Park, PA, Fall 1979 to Spring 1983, awarded in June 1983; emphasis in electromagnetics, communications, and antennas.

ACADEMIC EXPERIENCE

Ohio University, *School of Electrical Engineering and Computer Science, Athens, OH*
Professor (6/2009-Present)
Associate Professor (5/2004-6/2009)
Assistant Professor, (3/1999-5/2004)
Visiting Assistant Professor, (9/1998-3/1999)
Graduate Instructor, (3/1998-6/1998)

Research:
- Differential Global Positioning System (GPS) Performance Analysis task for Northrop-Grumman Corporation, El Segundo, CA for engineering services and white paper. 2/27/2009 to 6/12/2009. Principle Investigator for this task.
- GPS Long Range Navigation (LORAN)-C Analysis and Support, sponsored by the FAA, Contract: DTFA01-01-C-00071, Technical Task Description 2.1, 10/1/07 to 12/30/07; new work from 1/1/08 to 09/26/08, then with contract extension to 04/30/09. I am the Principle Investigator for Loran-C support to FAA on all aspects. Coordinate all development

including King Air flight tests, Loran Propagation Model (LPM) development and validation, ASF measurement and validation studies, legacy performance assessments for GPS non-precision approach, H-field antenna specification.

- Ohio University Shielded Antenna Anechoic Chamber, used in research for the following projects:
  - o Spectral Systems Incorporated/Sierra Nevada Corporation microwave antenna development (2.4 GHz band)
  - o FAA Instrumented Landing System (ILS) antenna (300MHz band)
  - o Stanford University, Joint Precision Approach and Landing System Controlled Reception Pattern Array measurement (L band)
  - o USCG NDGPS Antenna Performance Analysis (L band)
  - o FAA GPS interference work (L band)

I am the Principle Investigator for development, testing, and coordination of all projects. All results were provided back to program sponsors.

- Development of a Prototype NDGPS High Performance Architecture Enhancement. Lead agency was the U.S. Department of Transportation (DOT) Federal Railroad Administration (FRA) funded through DOT/Volpe Center. Contract DTRS57-04-C-10026 Base Period from 10/20/05 to 04/20/06 and Options 1 until 10/20/06 to 10/20/07. This was essentially a follow-on contract to the Prototype NDGPS contract shown below. I was the Principle Investigator for all development and research efforts.

- Combat Sent System Passive Ranging for high accuracy bearing determination to locations off the aircraft body. Issued under contract FA8620-05-G-3015-0002, Subcontract 301502-OU-01, from U.S. Air Force, via Spectral Systems Incorporated/Sierra Nevada Corporation, from 8/1/05-4/15/06. (Co-PI with Frank van Graas); asked co-PI for advice occasionally. Contribution Level: High (~30%). I was the Principle Investigator for all development and research efforts including DC-3 flight tests.

- Analysis and Evaluation on Impact of the Wide Area Augmentation System (WAAS) on Maritime Radio Navigation Users, from Volpe. Contract DTRT57-05-P-80171 from 6/17/05-3/17/06. I was the Principle Investigator for all development and research efforts.

- Development of a Prototype Nationwide Differential Global Positioning System (NDGPS) and High Performance Architecture Demonstration. Lead agency was the U.S. Department of Transportation (DOT) Federal Railroad Administration (FRA) funded through DOT/Volpe Center. Contract DTRS57-04-C-10026 Base Period from 03/30/04 to 09/30/04 and Options 2 until 09/30/06. I was the Principle Investigator for all development and research efforts. (This was the original DOT/FRA/Volpe contracts, which led to the follow-on contract shown earlier.)

- Missile Range Safety Technology (BMRST), Eastern Range, Command Destruct System (CDS) Testing Flight Test Support, supported by Florida Air National Guard (FLANG), Contract W911YN-06-P-002, from 10/06/05-07/06/05. I was the Principle Investigator for all development and research efforts.

- Antenna Baseline and Attitude Measurement Systems (ABAMS) Feasibility Study for UAVs, Lead agency is the U.S. Naval Research Laboratory, via ITT Industries, from 9/29/2004 to 8/5/2005. (co-PI with Tom Arthur)

- Antenna Performance Analysis for the U.S. Coast Guard NDGPS sites. New effort awarded from U.S. DOT Volpe Center, Contract DTRS57-04-P-80285, from 8/16/04-04/29/05. I was

the Principle Investigator for all development and research efforts.

- Antenna Baseline Measurement System (ABMS) for high accuracy bearing determination to locations off the aircraft body. Contract F33657-02-G-4036-0004, Subcontract 4.3604-OU-01. Issued from U.S. Air Force, via Spectral Systems Incorporated/Sierra Nevada Corporation, from 9/1/03-10/31/04. (Co-PI with Frank van Graas) I was the Principle Investigator for the development and research efforts including DC-3 flight tests.
- Anti-Jam Navigation Terminal System (ANTS) for the Air Force Research Laboratory, Space Vehicle, Ballistic Missile Technology Program Office. Contract F29601-00-C-0212, Anti-Jam Navigation Terminal System Using the Global Positioning System. Multi-year contract:
  - o Base Year, from 09/07/00 to 2/29/02
  - o Option Year One Awarded on 8/14/01 for 12 months:
    - Task 3.1 GPS Transceiver Development
    - Task 3.2 AZMLA Development; extended to 7/31/03.

  I was the Principle Investigator for all development and research efforts.
- GPS-based Range Safety System to meet the Air Force Research Laboratory, Space Vehicle, Ballistic Missile Technology Program Office requirements. Research for the establishment, licensing, and certification of a GPS-based range safety system to eliminate ground-based radars. Contract F29601-99-C-0176, GPS Range Safety Technology System, from 10/1/99 to 9/30/00; then, from 1/17/01-1/31/03. I was the Principle Investigator for all development and research efforts.

Teaching:

I taught the following electrical engineering courses at Ohio University, Athens, OH:

1. EE6900 Satellite Communications, F13-14.
2. EE 441/541, EE4403/5403Antennas and Microwaves Theory, W98-99, S12-13, S13-14.
3. EE 605/6054 Satellite-Based Navigation Systems, F00-01, F01-02, F03-04, W04-05, F06-07, F07-08, F08-09, F09-10, F10-11, F11-12, F12-13.
4. EE 602/690 Radar Systems, S99-00, W10-11.
5. EE 613/690 High-Accuracy Satellite Navigation Systems, S00-01, S01-02, W03-04, S06-07, W07-08, W08-09, W09-10, S10-11, S11-12.
6. EE 690 GNSS Antennas, W11-12.
7. EE 321/3214 Electromagnetics and Materials I, W99-00, W01-02, W02-03, F12-13, F13-14.
8. EE 395C/EE3223 Intermediate Electrical and Computer Engineering Design Experience/Electromagnetics & Materials II, S02-03, F03-04, F06-07, S07-08, S09-10, F10-11, S10-11, F11-12, S11-12, S12-13, S13-14.
9. EE395B Intermediate Laboratory Experimentation II, W08-09, S08-09, W09-10, S09-10, F10-11, W10-11, S10-11, W11-12. (Electromagnetics/Motors part). (Electromagnetics/Antennas/Communications).
10. EE 601/690, Electromagnetic Wave Propagation in Electronic Navigation Systems, F99-00, F04-05.
11. EE 690 Satellite Navigation Systems for Automobiles Seminar (Independent Study), S06-07.

12. EE 495A/B/C Electrical and Computer Engineering Capstone Design I, II, & III, Design Project Leader for a GPS Antenna, 2002-2003 and 2003-2004. Used EECS Antenna Anechoic Chamber in design evaluation.
13. EE 490 Electromagnetics Experimentation Design, F02-03, superseded by EE395C.
14. EE 690 Antenna Pattern Measurement Seminar (Independent Study), W00-01, F06-07.
15. EE 371 Applied Probability and Statistics for Electrical Engineers, S97-98, S98-99.
16. EE 312 Linear Systems and Networks II, W98-99.
17. EE 310 Linear Systems and Networks I, F98-99.

Graduate Student Summary:

The following lists are for the Theses/Dissertations Directed (Graduated and Current):

Graduated Students:

1. Christian Sagardia, MSEE, "Design, Simulation, Fabrication, and Test of a GPS L1 Antenna Using the Finite-Difference Time Domain Method and Photolithography Techniques", May 2014.
2. Augustine Yellu, MSEE, "A Uniform Geometrical Theory of Diffraction Model of VHF Omni Range (VOR) Systems for Improved Accuracy, August 2013.
3. Zach Bauer, MSEE, "A Calibration Method for a Controlled Reception Pattern Antenna and Software Defined Radio Configuration", May 2013.
4. Mahesh Katragadda, MSEE, "Design and Simulation of a Planar Crossed-Dipole Global Navigation Satellite System (GNSS) Antenna in the L1 Frequency Band", Fall 2012.
5. Ravi Varma Komarabathuni, MSEE, "Performance Assessment of a 77 GHz Automotive Radar for Various Obstacle Avoidance Applications", Ohio University, Spring 2010-2011.
6. Raghunath Viswanatha, MSEE, "A Multi-channel RF Front End for Global Navigation Satellite System Receiver", Ohio University, November 2008.
7. Tim Needham, MSEE, "A Low Rate Data Link for a High Performance Differential Global Positioning System", Ohio University, June 2008.
8. Jeff Dickman, Ph.D.EE, "Single Platform Relative Positioning for Sensor Stabilization", Ohio University, June 2008.
9. Luyi Chen, MSEE, "Dual Frequency Patch Antenna Design for Global Navigation Satellite System", Ohio University, June 2007.
10. Ian Barton, MSEE, "Antenna Performance Analysis for the Nationwide Differential Global Positioning System", November 2005.
11. Yujie Zhang, Ph.D.EE, "High Performance Differential Global Positioning System (HP-DGPS) For Long Range Baseline Application", Ohio University, August 2005.
12. Sumit Bhattacharya, MSEE, "A Real-time Bi-directional Differential Global Positioning System Data Link over Internet Protocol", Ohio University, March 2005.
13. Sidharth Nair, MSEE, "A Multiple Antenna Global Positioning System Configuration For Enhanced Performance", Ohio University, June 2004.
14. Sai Kiran, Ph.D.EE, "A Wideband Airport Pseudolite for LAAS", Ohio University, November 2003.
15. Ranjeet Shetty, MSEE, "A Real-Time Bi-Directional Differential Global Positioning System", Ohio University, November 2002.
16. Jeff Dickman, MSEE, "Multipath Limiting Antenna Design Considerations for Ground Based Pseudolite Ranging Sources", Ohio University, November 2001.

Current Graduate Students:
1. Kiran Kumar, "Intelligent Ground Vehicle Control using the Global Positioning Systems" graduation planned Spring 2015.
2. Gangula Rohan Sai, MSEE, "Dual-crossed Dipole Antenna Design for Global Navigation Satellite System", graduation planned Spring 2015.
3. Joel, Schopis, MSEE, "A Dual-frequency GNSS Antenna for Aviation", graduation planned Spring 2015.
4. Tim Needham, Ph.D. EE, "A Terrestrial Positioning and Timing System", Ph.D graduation planned Spring 2016.
5. Meenakshi Kohli, Ph.D. EE, "Printed Planar Antennas Suitable for Semi-conductor Devices", graduation planned, Spring 2016.
6. Sumit Bhattacharya, Ph.D.EE, Ohio University, "A GPS-based Augmentation Navigation System Augmented with Multi-Vision Sensors", graduation planned Spring 2016.

School Committee Service Summary:

Department Committees:
1. Accreditation Board for Engineering and Technology (ABET) Committee for Electrical Engineering Program, School of EECS, 2013-Present.
2. Senior Design Committee, coordination of senior design project to ensure ABET compliance, 2013, Committee Member.
3. Curriculum Committee, Review and oversee all changes to curriculums and courses, 2010-2014, Committee Member.
4. Graduate, School of EECS, 2004-2006, Committee Member.
5. Assessment and Accreditation, School of EECS, 2002-2004, Committee Member.
6. EE Senior Focus for the School of EECS, 2003-2006, Committee Member.
7. EE Intermediate Courses for the School of EECS, 2003-2006, Committee Member.
8. EE Design Courses for the School of EECS, 2003-2006, Committee Member.
9. Matlab® Ad Hoc, February 2004, For discussion on adding additional MATLAB into the EECS curriculum. Outcome was to add Matlab® in EE103, Committee Member.
10. Intermediate Curriculum Committee, Overseeing Development of new EE333/EE334 Intermediate I/II, EE321 Electromagnetic, and EE371 Probability and Statistics Courses in new EECS Curriculum. 1999-2003, Head of Committee.
11. Stocker Research Award, School of EECS, 1999-2000, Committee Member.

College Committees:
1. College Professional Ethics Committee, Russ College of Engineering and Technology, 2004-2014, Faculty Senate Appointed, Committee Member.
2. Dean's Evaluation Committee, for 2009, 2014, Faculty Senate Appointed, Committee Member, Chair.
3. Auto ID 5-year Review Committee. 2005, Committee Member.

University Committees:
1. Faculty Senate, Ohio University for 2006-2009, 2009-2010, and 2013-Present. Faculty Senator, elected by and represent Russ College of Engineering and Technology.
2. Educational Programs and Student Activates (EPSA), Ohio University, sub-committee of Faculty Senate, 2013-2014, Committee Member.
3. Copyright Committee, Ohio University, Oct 2013-Present.

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