Robert Khederian

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OBJECTIVE Looking to offer my Electrical Engineering expertise in the field of Oceanography on a part-time basis.

SUMMARY Electrical Engineer highly knowledgeable in the field of Oceanography. Experience in electronics from several years working full time in various engineering positions. Presently working as Assistant Professor teaching Oceanography, Physics, and Mathematics.

- Hands on design experience in many aspects of electronic products, including digital and analog hardware, embedded systems design, firmware, programmable logic, sensor interface, high-speed memory, microprocessor interface, software, motion control, digital signal processing, and power electronics
- Experience interfacing with multiple aspects of business, including sales, marketing, manufacturing, and customer interactions
- Ability to present and explain technical information, including training and educating co-workers
- Strong technical knowledge in several disciplines, such as physics and robotics
- Management at the product and group level
- Taught seven Oceanography classes since January 2007
- First hand knowledge of the ocean through recreation such as sailing and kayaking

FULL TIME EXPERIENCE

Fall 2005 – Present *New England Institute of Art,* **Assistant Professor of Science and Mathematics**
Responsible for teaching courses in science and mathematics to students pursuing bachelor and associate degrees.

- Successful teaching experience in the following courses: Oceanography, Physics, Physical Science, Astronomy, Calculus, Advanced Algebra and Trigonometry, College Algebra
- Topics covered in Oceanography include the chemistry of seawater, air-sea interaction, global climate change, ocean circulation, wave dynamics, tides, longshore transport, pollution, estuaries and wetlands, marine life, plate tectonics and geology

1/2005 – 8/2005 *Electro-Standards Laboratories,* **Principal Engineer**

- Worked with customers on applications of high performance digital signal conditioner used in industrial applications
- Worked with Marketing to create data sheets for new product launches
- Hardware design of wireless communications, battery backup, and flash memory card upgrades for an industrial product
- Simulation of complex electro-mechanical systems using MATLAB

2000 – 2003 *White Electronic Design Corporation,* **Principal Product Engineer**

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- Served as product development leader for over 20 projects. Products utilize high speed memory technologies used in multi-die BGA packages
- Design of custom memory products utilizing technologies such as SSRAM, SDRAM, DDR SDRAM, ZBT, QDR for use in networking applications
- Performed timing analysis to provide design rules for PCB layout
- Verified timing of high speed memory using Teradyne testers
- Designed PCB stackups for controlled impedance of up to 18 layers
- Designed in buried resistor technology into PCB to minimize signal reflections in a very dense high speed memory board
- Worked with Marketing to identify product definition
- Worked with customers to establish design goals and supplied continuous updates through the design cycle
- Developed (IBIS) simulation models for all company products
- Worked with Marketing to get simulation models on the company website
- Facilitated inter-department communication to improve design and manufacturing process efficiencies
- Trained co-workers on schematic capture package

1997- 2000 *Brooks Automation,* **Electrical Engineering Manager**

- Supervised six people, including engineers and technicians
- Responsible for hiring two individuals
- Defined product specifications and acted as the electrical lead in projects involving image processing, and electro-mechanical machinery for automation
- Conceptual analysis of networking protocols, including CAN, DeviceNet, Firewire, Ethernet, and IrDA

Brooks Automation, **Senior Electrical Engineer**

- Firmware design of FPGA for robot controller hardware
- Wrote DSP code using TMS320xx family to control motors

1991-1997 *CTI-Cryogenics,* **Electrical Engineer**

- Responsible for the design and development of embedded controllers for vacuum systems, including motor and temperature control, and control of multiple pumps
- Wrote extensive DSP algorithms in C and assembly language for precision motion and temperature control
- Firmware design consisted of incorporating timers and digital logic into an FPGA. Performed full timing analysis of the FPGA
- Analog circuit designs to do the following; gain, filtering, precision instrumentation, current bias, differential measurements, A/D conversion. Careful design was required to reduce noise and eliminate ground loops
- Designed power electronics to do the following; rectification of universal AC mains including auto-selection, dc/dc converters, 300 VDC three phase voltage inverter to drive motors
- Performed extensive dynamic system modeling using MATLAB

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- Implemented PID, state-space, FIR filters, fuzzy logic algorithms, and algorithms for sensorless motor control

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1988-1990 *EG&G Torque Systems,* **Electrical Engineer**

- Responsible for development and applications of motion control systems

PART TIME EXPERIENCE Work done concurrently with working as Assistant Professor

2006, 2008 *Potomac Electric*, **Electrical Engineer Contractor**

- System engineering for robotic motion controller
- Designed interface circuitry for a sinusoidal Encoder application.

2007 *Sontra Medical*, **Electrical Engineer Contractor**

- Responsible for documentation, hardware updates, and software management for a medical device company

2006-2007 *Houghton Mifflin*, **Algorithmic Author**

- Responsible for taking static math problems and creating algorithmic problems using software tools. These problems are used in Algebra textbooks.

EDUCATION **M. S., Electrical Engineering**, 1993, Worcester Polytechnic Institute
B. S., Electrical Engineering, 1988, Worcester Polytechnic Institute

US PATENTS U. S. PATENT NUMBER 6,943,454 "*Memory Module*"
U. S. PATENT NUMBER 5,765,378 "*Method and Apparatus for Detecting a Loss of Differential Pressure in a Cryogenic Refrigerator*"
U. S. PATENT NUMBER 5,775,109 "*Enhanced Cooldown of Multiple Cryogenic Refrigerators Supplied by a Common Compressor*"