Mason Earl Nixon

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OBJECTIVE: To apply my knowledge and skills in the field of electrical engineering with emphasis in wireless technologies and control systems.

EDUCATION

Institution	*Dates*	*Degree*	*Notables*
Auburn University at Montgomery	Spring '06 - Summer '08	N/A	**Dean's List** Spring 2006 to Spring 2008 **Final GPA: 3.89**
Auburn University	Fall '08 – Spring '11	B.S. Electrical & Wireless Engineering May '11	**Summa Cum Laude** **Ranked 1st in Electrical Engineering Class'11** **Dean's List** Spring 2009 to Spring 2011, **Final GPA: 3.89**
Georgia Institute of Technology	Fall 2011 – Spring '13	M.S. in Electrical Engineering May '13	**Focus Areas: Control Systems, Human Automation Systems, & Electromagnetics**

EXPERIENCE (REMUNERATED)

Department of Defense (DoD) Space and Missile Defense Command (SMDC) Concepts Analysis Lab (CAL) *General Engineer*	**June '13 – Present** – Operated interferometer radar as sole truth sensor for Counter Rockets, Artillery, and Mortar tests. Nano-satellite mission planner and orbit propagator. Saved $100,000+. Satellite and radar data logging and database management tools designed and written. Stepper motor-based Pan tilt control design and implementation.
Department of Defense (DoD) Space and Missile Defense Command (SMDC) Concepts Analysis Lab (CAL) *General Engineer Contractor*	**May '12 to Aug. '12** – Led a team of 5 interns in rebuilding a remote controlled gun turret demonstration. Using a webcam, wrote a computer vision algorithm to detect the position of a target. Developed a tracking algorithm that could predict simple motion of the target to intercept it. Led a team of 3 in developing a graphical software version control. Worked with the Space group at SMDC to develop a logging tool for satellite passes. Completed the task promptly and was then given the task of designing a tool to determine which direction to point the ground station to receive data from the satellite. Once the program is completed, it will internalize a process that currently costs the command upwards of $600,000. **May '11 – Aug. '11** – Aided in the design of a high-altitude balloon payload that acted as a simulated satellite. The payload included: Atmel microcontroller, GPS IC with helical antenna, temperature sensors, accelerometer, gyro, and a 900 MHz transceiver. I also operated and logged data from an interferometer radar that acted as the sole truth sensor in a field test of multiple radars in detecting rockets, artillery, and mortar. **May '10 – Aug. '10** – Designed and analyzed a free space optical data transmission system for a satellite-to-ground link. Worked on various other projects involving satellites and lasers. Also performed simulation and interpretation with MATLAB and Google Earth. This job requires a security clearance at the level of **SECRET** which was obtained in April 2010.
M.C. Dean Inc. *Design Engineer Intern*	**May '09 – Aug. '09** – Aided other Design Engineers in designing security and control access systems with extensive use of AutoCAD 2009. Revised projects to work with an infrastructure maintenance management system and helped design control access systems. Also performed quality control and revision of design submissions. It is notable that the projects that were handled contained sensitive information.

EXPERIENCE (VOLUNTEER)

AU Student Projects and Research Committee (SPaRC) *Project Manager*	**Jan. '09 - May '11** – Delegated and aided a team of 12+ students in the design of chassis, drive systems, power systems, and control systems of an autonomous solar-powered robot for the IEEE Hardware Design competition. Notable experience gained on microcontrollers such as the Arduino, Motorola HCS12, and the PIC 16 bit. Experience gained in construction of solar cell arrays and power systems. Also constructed and demonstrated a guitar effect clone.
AUM Engineering Club *President & Co-founder*	**Jan. '08 - Aug. '08** - Began and oversaw team projects with teams of 5 or more on such tasks as the conversion and implementation of petroleum-burning vehicles into ethanol burning vehicles into the AUM fleet, biodiesel vehicle conversion, and campus wide recycling.

General / Scholarships

- Honored in recognition of Outstanding Research in Alternative Fuels (2008)
- Accepted the Department of Defense SMART Scholarship and Internship out of 1500 nationwide applicants (2009) and out of 2700 nationwide applicants (2011)
- Honored with IEC Everitt Award for Student Excellence (2010-2011)
- Academic Excellence Merit Scholarship 2007 to 2008
- AT&T Foundation Scholarship 2008 to 2011 (out of 2700 applicants)
- Electrical Engineering Annual Faculty Scholarship 2010 to 2011
- Recipient of Cellnet Technology ($12,000) Annual Scholarship 2009 to 2010
- Engineering Wifi Antenna Design Team Competition Winner (2007)
- Radar Tracking Algorithm Design Team Winner (2010)

Honor Societies& Affiliations

- Innovative Humanitarian Products Organization – Vice-President Spring 2010 to Spring 2011
- IEEE AU Student Branch – Officer Spring 2009 to Spring 2011
- Eta Kappa Nu – Officer Fall 2009 to Spring 2011
- Tau Beta Pi – Officer Spring 2010 to Spring 2011
- National Society of Collegiate Scholars – Spring 2009 to Spring 2011
- AU Engineering Council – Representative Fall 2009 to Spring 2011

Publications

- Fostering Undergraduate Research through a Student Projects and Research Club. Roppel, T., Nelms, M., Smolin, L., Nixon, M. ASEE Southeast Section Conference. 2012.
- Quantitative Evaluation of the Microsoft Kinect for Use in an Upper Extremity Virtual Rehabilitation Environment. Nixon, M., Howard, A., Chen, Y. Int'l Conference on Virtual Rehabilitation. 2013.
- Applying Gaming Principles to Virtual Environments for Upper Extremity Therapy Games. Nixon, M., Howard, A. IEEE International Conference on Systems, Man, and Cybernetics. 2013.

SPECIAL SKILLS

Software	*Hardware*
• MATLAB 2012b with Simulink experience	• Vicon Motion Capture System
• AutoCAD 2009	• Accelerometer, gyroscope, GPS, IR proximity, photovoltaic, and other various sensors
• C++ / Visual C++ (.NET 4.0 Framework)	• HCS12 Motorola Microcontroller/assembly language
• OpenCV C++ library ver. 2.3	• Hokuyo URG-04LX Laser Rangefinder
• C# (.NET 4.5 Framework)	• Atmel microcontrollers with Arduino bootloader
• HTML 4, JavaScript, Cascading Style Sheets, & XML	• Nordic nrf51822 BT LE chipset
• Adobe Photoshop CS3	
• 2010 Microsoft Office Suite	
• Microsoft Kinect for Windows SDK v1.6	
• ViconiQ v2.5	
• Ubuntu Linux v12.04	