SHANE RYAN

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EDUCATION

University of Notre Dame	**Dual-Degree Program**
B.S. Electrical Engineering, College of Engineering	*August 2014 – May 2018*
B.S. Physics, College of Science	**GPA: 3.5/4.0**
• **Trustey Family STEM Merit Scholar** ($100,000 for 6 students)	SAT: 2310 (Perfect Math)
• Selected for Notre Dame Engineering Honors Program	ACT: 35 (36 Math, Science)

EXPERIENCE

MIT Lincoln Laboratory	**Lexington, MA**
Defense Research Intern - Advanced Technology Division, Group 89	*Summer 2016*

- Solved an open-ended technical problem; worked independently, creatively, and was entirely self-managed
  - Characterization of experimental integrated photonic devices was the limiting factor for many project timelines
- Created an automated data acquisition and analysis system for such devices– robust, reliable, and in use today at the Lab
  - Developed control software for 7 stepper motors, tunable laser, spectrum analyzer, various detectors using C and C++
  - Developed data analysis programs, front-end controls, and a device layout interpreter using Matlab

Notre Dame Nuclear Science Lab	**Notre Dame, IN**
Research Intern	*May 2015 – January 2016*

- Designed, built, and maintained high-voltage electronic power systems
- Analyzed and processed data for publication, worked in a high-risk environment
- Co-authored a scientific publication: *Experimental Investigation of the Repelling Force from RF Carpets*

Notre Dame NASA Rocketry Team	**Notre Dame, IN**
Communications Squad Leader, Control Payload Engineer	*Fall 2014 – Spring 2016*

- Created main electronics payload for data collection, system monitoring, and communication via HAM radio
- Programmed an Automated Air-Braking Payload for apogee control using a PIC24 via PID in real-time with C
- Delegated work to complete squad tasks and managed team members

HONORS & AWARDS

- Class Valedictorian, Perfect GPA, Varsity Football Captain, Highest GPA in district — *Prospect High School, 2014*
- National Merit Finalist, National AP Scholar with Distinction — *The College Board, 2014*
- Notre Dame Reilly Scholar (Top 100 Applicants Worldwide) — *Notre Dame, 2014*
- F.I.R.S.T. Robotics World Champions, "Wildstangs" — *Rolling Meadows, 2011*

RECENT PROJECT EXPERIENCE

Campus Laundry Network Reverse-Engineering	*Spring 2016*

- Captured and analyzed communications, deciphered command set, replicated master comms. to control washers / dryers

IEEE Robotics Competition – 2nd Place	*Winter 2015/16*

- Programmed an iRobot Create with custom ATMega board to solve a maze in a timed, region-wide competition (C++)

Internet-Connected Coffee Maker	*Fall 2015*

- Reverse-Engineered coffee machine, automated brewing process, connected to end user via internet (ATMega, Linux)

SKILLS

- Proficient in C, MATLAB, Unix Shell, Assembly for PIC24 and PIC18 series, knowledgeable in C++, FPGA usage, Verilog
- Competent with electronic hardware, communications, PCB design, standard CAD design in EAGLE, SolidWorks, Creo
- Relevant coursework in Embedded Systems, Differential Equations, Electronics, Electromagnetic Waves, Photonics