

# SHANE RYAN

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## EDUCATION

### University of Notre Dame

B.S. Electrical Engineering, College of Engineering  
Concentration in Semiconductors and Nanotechnology

B.S. Physics, College of Science

- **Trustey Family STEM Merit Scholar** (\$100,000 for 6 students)
- Selected for Notre Dame Engineering Honors Program

**Notre Dame, IN**

*August 2014 – May 2018*

**GPA: 3.42/4.0**

*August 2014 – May 2018*

SAT: 2310 (Perfect Math)

ACT: 35 (36 Math, Science)

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## EXPERIENCE

### Notre Dame Nuclear Science Lab

*Research Intern*

**Notre Dame, IN**

*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

*Communications Squad Leader, Control Payload Engineer*

**Notre Dame, IN**

*Fall 2014 - Present*

- 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

### Notre Dame Optoelectronics and Photonics Lab

*Research Intern*

**Notre Dame, IN**

*January 2016 – present*

- Studied high-power semiconductor laser devices in a related graduate-level course
- Repaired and characterized a Class III water-cooled gas laser

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## HONORS & AWARDS

- Class Valedictorian, Perfect GPA, Varsity Football Captain, Highest GPA in district
- National Merit Finalist, National AP Scholar with Distinction
- Notre Dame Reilly Scholar (Top 100 Applicants Worldwide)
- F.I.R.S.T. Robotics World Champions, Wildstangs

*Prospect High School, 2014*

*The College Board, 2014*

*Notre Dame, 2014*

*Rolling Meadows, 2011*

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## RECENT PROJECT EXPERIENCE

### Internet-Connected Coffee Maker

*Fall 2015*

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

### ATmega Lighting Control System

*Summer 2015*

- Designed custom embedded system to perform a FFT on an audio signal via DSP, log data, and control lights in real-time

### IEEE Robotics Competition – 2<sup>nd</sup> Place

*Winter 2015/16*

- Programmed an iRobot Create with custom ATmega breakout to solve a maze in a timed, region-wide competition

### 3D Printed Drone

*Spring 2015*

- Created palm-sized frame in SolidWorks, assembled custom electronics and flight controller, 3D printed frame

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## SKILLS

- Proficient in C, knowledgeable in Assembly for PIC24 and PIC18 series, FPGA usage, C++, Unix Shell, Verilog, Python
- Competent with electronic hardware, schematics, and PCB design, standard CAD design in EAGLE, SolidWorks, Creo
- Relevant coursework in Embedded Systems, Thermodynamics, Logic Design, Electronics, Electric Circuits, Photonics