

# Michael Eugene Kepler Jr

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U.S. Citizen

## EDUCATION

**Virginia Tech:** Blacksburg, Virginia

*Electrical Engineering M.S., Control Systems Concentration*

August 2016 – May 2018

**George Mason University:** Fairfax, Virginia

*Electrical Engineering B.S., Control Systems Concentration*

August 2013 – May 2016

- 5-Time Dean's List
- ABET-Accredited program

**GPA: 3.73**

## COMPUTER SKILLS

- **Programming:** Java, C, Python, MATLAB, VHDL, X-Midas, Gcode, HTML, CSS
- **Operating systems:** Linux, Windows
- **Simulation & Design Software:** MATLAB, OrCAD-PSPICE, AUTOCAD, HSM CAD/CAM, Inventor, KiCAD  
PCB Design

## COURSES AND PROJECTS

- **Control Theory and Robotics:**
  - Robot Implementation and Design:** designed (3D), built, and programmed a remotely controlled and monitored car, crane, and walking hexapod as well as an autonomous crane and basketball playing robot. Key skills learned: Microcomputer-microcontroller-sensor integration, 3D-printing and design, computer vision, color tracking using PID control, packet transmission and video frame streaming using UDP.
  - Introduction to Robotics:** Built a robotic car to that implements light following behavior using LDR sensors and bang-bang control, implements wall following behavior using IR sensors and PID control, implements Dead-Reckoning navigation using wheel-encoders, and using subsumption, incorporating all the aforementioned behaviors, to develop a completely autonomously navigational robotic car with the processing and communication done on a Beaglebone Black microcomputer.
  - Control Theory:** Design second order systems to meet certain criteria (steady state error, settling time, percent overshoot, etc.). Satisfy Transient and Steady-state error specifications using lead and lag compensators. Obtain system state equations and placing them in observable and controllable canonical forms with the aid of modal decomposition. Design controllers for servo motors, inverted pendulums, ship heading angles, and ship depth rate.
- **Signal Processing:** Fourier transform, Z transform, Sampling theory, Mixing, Tuning, Filtering, Correlation

## WORK EXPERIENCE

**Aerospace Graduate Controls Intern**

**June 2016 – August 2016**

**Bit Systems Electrical Engineering Intern**

**June 2015 – August 2015**

- Configured handset transmitters, power supplies, and receivers to take RF recordings using MMS hardware.
- Tuned, filtered, and mixed different signals, and analyzed the resulting power spectral density and spectrogram.
- Characterized signals according to baud rate, signal bandwidth, frame sync, hop duration, etc.
- Transmitted recordings with different levels of AWGN via USRP.
- Performed statistical analysis on the probability of detection of different degraded transmitter-receiver pairing recordings.

## LEADERSHIP AND SERVICE ROLES

- Institute of Electrical and Electronic Engineers - **Former Student Chapter Treasurer**
- Alpha Phi Omega Service Fraternity
- Society of Hispanic Professional Engineers