

# Noah W. Johnson

GRADUATE RESEARCH ASSISTANT · TEACHING ASSISTANT · UNDERGRADUATE LAB COORDINATOR

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## Research Interests

Augmented and Virtual Reality · Wireless Edge Computing · Machine Learning · Embedded System Design

## Education

### University of Rhode Island

MASTERS OF SCIENCE, ELECTRICAL ENGINEERING

**Focus:** Edge Computing, Augmented/Virtual Reality Networking

Kingston, RI

August 2018 - Present

### University of Rhode Island

BACHELORS OF SCIENCE, COMPUTER ENGINEERING

**Major GPA : 3.85/4.00**

Kingston, RI

August 2014 - May 2018

## Honors & Awards

2016 - 18 **Dean's List**, University of Rhode Island

Kingston, RI

2018 **2nd Place**, HealthHacksRI 2018 (of 10 teams representing 6 universities)

Kingston, RI

2018 **4th Place**, URI Capstone Spring Summit (out of 17 teams)

Kingston, RI

2017 **6th Place**, URI Capstone Fall Symposium (out of 17 teams)

Kingston, RI

## Professional Experience

### Smart Networking and Computing (SNeC) Lab

GRADUATE RESEARCH ASSISTANT, UNDERGRADUATE LAB COORDINATOR

Kingston, RI

May 2018 - Present

- Extended previous project to novel mobile-based hazard avoidance system. Presented works at (URI)<sup>2</sup> Research Symposium.  
**Coordinate 2 undergraduate researchers working on this project.**
- Developing Machine Learning task partitioning test bench for testing load-balancing algorithms. Currently using Tensorflow.

### Handheld Arbitrary Waveform Generator - AstroNova Inc.

EMBEDDED SYSTEMS ENGINEER

Kingston, RI

Aug. 2017 - Present

- Designed and implemented FPGA-based architecture using VHDL and Xilinx Vivado Tools.
- Wrote firmware to support control of waveform parameters using C and Vivado SDK.
- Assisted in writing PC based application for fine control of waveforms using C#.

### University of Rhode Island IT Services

IT HARDWARE SPECIALIST

Kingston, RI

Oct. 2016 - Present

- Serviced/optimized hardware and software daily for students/faculty. Honed communication and teamwork skills.

### VoltServer Inc.

PRODUCTION ENGINEERING INTERN

East Greenwich, RI

Mar. 2017 - Aug. 2017

- Designed and constructed production testing / validation equipment and software.
- Performed RMA work on high voltage power transmission boards. Honed soldering ability.

## Project Experience

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### Third-Eye Hazard Avoidance System

SNeC Lab Research Project

FOCUS: AUTONOMOUS DRIVER ASSISTANCE

Spring 2018 - Present

- Extended previous experience with Tensorflow and Deep Learning to implement Alexnet-based classifier and detector
- Trained model on German street sign database and deployed to Android application for proof of concept implementation.

### Exploration of Deep Learning in Computer Vision

ELE 408 - Embedded System Design

FOCUS: MACHINE LEARNING, EDGE COMPUTING, EMBEDDED SYSTEMS

Spring 2018

- Developed Neural Network to quickly identify movement within live IP Camera footage using Tensorflow and SSD MobileNet.

### Various Models of Digital Control

ELE 458 - Digital Control Systems

FOCUS: DESIGN OF SISO/MIMO CONTROL SYSTEMS, OBSERVER-BASED REGULATORS, DIGITAL TRACKING SYSTEMS

Spring 2018

- Extensively used Matlab, Simulink and lab hardware to derive and implement linear hardware control systems.

### Fractal Algorithm Optimization

ELE 405 - Digital Computer Design

FOCUS: INSTRUCTION SET DESIGN, PIPELINE OPTIMIZATION

Fall 2018

- Optimized 7 Stage Pipeline CPU written in VHDL for graphics processing. **Earned 3rd best optimization metric in class of 30.**

## Research Areas

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<b>Augmented Reality</b>	Low-cost Hazard Avoidance System for vehicles, HoloLens-based anxiety therapy
<b>Networking</b>	Implementation of load-balancing algorithms, Efficient video streaming and encoding
<b>Linear Control</b>	Design/analysis of digital control systems using MATLAB and Simulink, Delta analysis of control systems
<b>Machine Learning</b>	Applications of CNNs for Object Detection, ML Task Partitioning between the mobile device and the cloud