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

Graduate

University of Rhode Island — *Kingston, RI*

Masters of Science, Electrical Engineering — *August 2018 - Present*

Focus: Edge Computing, Augmented/Virtual Reality Networking

Undergraduate

University of Rhode Island — *Kingston, RI*

Bachelors of Science, Computer Engineering — *August 2014 - May 2018*

Major GPA : 3.85/4.00

Honors & Awards

Graduate

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

Undergraduate

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

Graduate Research Assistant, Undergraduate Lab Coordinator — *May 2018 - Present*

- Extended previous project to novel mobile-based hazard avoidance system. Presented works at $(URI)^2$ 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. — *Kingston, RI*

Embedded Systems Engineer — *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 — *Kingston, RI*

IT Hardware Specialist — *Oct. 2016 - Present*

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

VoltServer Inc. — *East Greenwich, RI*

Production Engineering Intern — *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

Graduate

Third-Eye Hazard Avoidance System *SNeC Lab Research Project*

Focus: Autonomus 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.

Undergraduate

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 2017*

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

Teaching Experience

Graduate

ELE 202 · Digital Circuit Design Laboratory *Graduate Teaching Assistant*

Topics Include: Boolean Logic Circuits, Finite State Machines, Circuit Simulation *Fall 2018 - Present*

- Taught Sophomore-level course on basics of digital circuit design, assisted students with debugging circuit logic
- Reinforced best practices in circuit analysis, critical thinking, and problem solving

Presentations and Poster Sessions

Graduate

$(URI)^2$ Research Symposium *Kingston, RI*

Poster Session *September 2018*

- Presented work on mobile-based augmented reality application for driver assistance.

HealthHacksRI 2018 *Kingston, RI*

Presentation and Demonstration Session *September 2018*

- Presented our solution to the mental health problem and a proof-of-concept implementation.
- **Awarded 2nd place of 10 teams representing 6 universities.**

Undergraduate

Spring Capstone Design Summit *Kingston, RI*

Presentation and Poster Session *May 2018*

- Presented 9 months of work and functional prototype to industry professionals.
- **Awarded 4th place of 17 teams**

Technical Skills

Data Science	Python, Deep Learning using Tensorflow, Event driven simulation using C/C++/VHDL, MATLAB
Embedded Systems	2 years of FPGA logic design using VHDL, Programming of said architectures using C
Linear Control	Design/analysis of digital control systems using MATLAB and Simulink, Delta analysis of control systems
Other	Robust knowledge of most operating systems, Effective communicator, public speaker, project coordinator