# Christian Kauten

Graduate Research Assistant at Auburn University

https://kautenja.github.io

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## Education

**Ph.D., Computer Science & Software Engineering**
*Auburn University*

Auburn, AL
*2017 – 2021*

**M.S., Computer Science & Software Engineering**
*Auburn University*

Auburn, AL
*2017 – 2019*

**B.S., Software Engineering**
*Auburn University*

Auburn, AL
*2013 – 2017*

## Research Experience

**Graduate Research Assistant**
*Auburn University*

Auburn, AL
*2017 – 2021*

- Sponsored a collegiate senior design team to build an autonomous vehicle driving simulator based on a modern game engine.
- Developed conditional generative adversarial networks for general purpose object detection and synthesis.
- Developed a user interface for autonomous vehicles to augment the intelligence of the passenger using camera sensors and object detection models. Preliminary system design was published at the 2018 pre-ICIS SIGDSA symposium [5]. Findings are under review for the Information Systems Research journal [1].
- Conducted DHS–funded research on financial sector vulnerability by modeling equity markets using agent-based modeling techniques. Findings were circulated internally for the US Department of Treasury [3].
- Conducted research on blood donor retention for a regional blood center. Findings are under review for the Information Systems Frontiers journal [2].
- Participated in a research project regarding fake news detection algorithms [4].
- Participated in a research project regarding renewable energy in data-centers [6].

## Industry Experience

**Founder, Synth Designer**
*KautenjaDSP*

Atlanta, GA
*2020 –*

- Responsible for the proposition, implementation, and publication of academic research projects.
- Responsible for the research, development, and design of digital synthesis components, including documentation, marketing, and product support.
- Ported programmable sound chip emulators into digital synthesis modules – oscillators, noise generators, envelope generators, filters, and effects.
- Ported an NES emulator into a modular synthesizer with novel features – modulation of the NES clock, audio-rate modulation of buttons, and level control of the audio synthesis channels.

## Publications

1. Christian Kauten, Ashish Gupta, Han Li, Xiao Qin, and Scott Martin. Improving trust in autonomous vehicles. *Information Systems Research*, 2021.

2. Christian Kauten, Ashish Gupta, Xiao Qin, and Glenn Richey. Predicting blood donors using machine learning techniques. In *Information Systems Frontiers*, December 2020.

3. Jonathon Lee, Christian Kauten, Ashish Gupta, and Andrew Bach. Understanding time and related threats in the financial service sector. Technical report, U.S. Department of The Treasury, August 2020.

4. Chaowei Zhang, Ashish Gupta, Christian Kauten, Amit V. Deokar, and Xiao Qin. Detecting fake news for reducing misinformation risks using analytics approaches. *European Journal of Operational Research*, 279(3):1036–1052, December 2019.

5. Christian Kauten, Ashish Gupta, Xiao Qin, Han Li, David Bevly, and Alison Jenkins. A perception augmentation system for autonomous vehicles. In *Proceedings of the 2018 Pre-ICIS SIGDSA Symposium*, San Francisco, CA, USA, December 2018.

6. Xiaopu Peng, Christian Kauten, Chaowei Zhang, Thomas Heckwolf, Jianzhou Mao, Taha Tekreeti, and Xiao Qin. REDUX: Managing renewable energy in data centers using distributed UPS systems. In *2018 IEEE International Conference on Smart Cloud (SmartCloud)*, pages 46–53, New York, USA, September 2018.

## Presentations

**Improving Trust and Enjoyment in Automated Driving Systems**

*Auburn University* — Auburn, AL
Dissertation Proposal Defense — *April, 2020*

**A Perception Augmentation System for Autonomous Vehicles**

*2019 Auburn University Student Symposium* — Auburn, AL
Poster Session — *April, 2019*

*2018 Pre-ICIS SIGDSA Symposium* — San Francisco, CA
Prototype Demonstration — *December, 2018*

## Awards, Grants & Honors

Woltosz Graduate Fellowship . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2017 – 2020
Holy Innocents' Computer Science Award . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2013
Eagle Scout Award . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2011

## Skills

**Software Engineering** Test & Behavior Driven Development, Software Modeling, Debugging, Profiling, Code Optizimation, Computer Architecture, Documentation, Source Control, Software Process

**Numerical Analysis and Computer Science** Algorithm Design & Analysis, Artificial Intelligence, Machine Learning, Parallel Programming, Distributed Systems, Data Structures

**Digital Signal Processing** Convolution, Fourier Analysis, Filter Design, Audio Processing, Image Processing