

# ALLIOT C. NAGLE

alliot.nagle@gmail.com

## EDUCATION

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**University of Wisconsin-Madison**  
MS Electrical Engineering

Sept. 2019 – Present  
Madison, WI

**University of Wisconsin-Madison**  
BS Electrical Engineering

Sept. 2014 – May 2019  
Madison, WI

## RESEARCH EXPERIENCE

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### **Algal Bloom Prediction & Modeling**

Jan 2018 – Present

Professor: Dimitris Papailiopoulos

Madison, WI

- Analyze and clean data from Clean Lakes Alliance, NOAA, and NTL-LTER to form data set
- Apply PCA, kernel SVMs, k-nearest neighbor, random forests, logistic regression, and neural networks to the data to choose best model and gather insight about the behavior of algal blooms
- Utilize high-throughput computing for model training
- GitHub Repository: <https://github.com/acnagle/CLA-Project>

### **Undergraduate Researcher**

May 2017 – Aug. 2017

Plasma Processing Technology Lab

Madison, WI

Professor: J. Leon Shohet

- Modeled surface potential of silicon wafers with thin films in MATLAB
- Increased reliability of and significantly reduced Kelvin probe operation times
- Wrote a technical paper explaining the physics and principles of the Kelvin probe

## TEACHING EXPERIENCE

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### **Graduate Teaching Assistant**

Sept. 2019 – Present

University of Wisconsin-Madison

Madison, WI

ECE 331: Introduction to Random Signal Analysis and Statistics

- Answer student questions during in-class activities and office hours. Engage with students in a flipped-classroom active learning environment to better facilitate their understanding of course content
- Responsible for implementing all in-class activities, homeworks, and quizzes in Canvas, our online learning tool

### **Undergraduate Teaching Assistant**

Sept. 2018 – Dec. 2018

University of Wisconsin-Madison

Madison, WI

ECE 330: Signals and Systems

- Answered students' questions in a flipped-classroom active learning environment in this second-level signal processing course
- Topics included Fourier Series, FT, DTFT, DFT, sampling, LTI systems, FIR filters, discrete and continuous-time systems, difference and differential equations

### **Undergraduate Teaching Assistant**

Jan. 2018 – May 2018

University of Wisconsin-Madison

Madison, WI

ECE 203: Signals, Information, and Computation

- Answered students' questions in a flipped-classroom active learning environment in this first-level signal processing course
- Topics included complex numbers, convolution, LTI systems, Fourier Series, DFT, sampling, filtering, image processing

## RELEVANT COURSEWORK

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CS 760: Machine Learning, CS 540: Intro to Artificial Intelligence, CS/ECE/ISyE 524: Intro to Optimization, CS/ECE/ME 532: Matrix Methods in Machine Learning, CS 367: Intro to Data Structures, ECE 729: Theory of Information Processing and Transmission (currently enrolled), MATH 521: Analysis I (currently enrolled)

## PROFESSIONAL WORK EXPERIENCE

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**Data Science Intern** May 2019 – Aug. 2019  
Elutions Delafield, WI

- Performed data cleaning and feature engineering for predictive maintenance and RUL models. Implemented predictive maintenance model as a binary classification task
- Developed scalable algorithms for automatically detecting air handling unit savings opportunities. Savings up to 72% was achieved
- Analyzed time series data for various proof of concept tasks

**Hardware Engineering Intern** May 2018 – Aug. 2018  
Thermo Fisher Scientific Madison, WI

- Designed the LED LightBar for the Nicolet Summit FTIR Spectrometer using Altium Designer
- Developed, fabricated, and tested functioning prototypes of the LED LightBar
- Collaborated with multi-disciplinary team of interns to develop the LED LightBar from conception to mass production
- Wrote a technical procedure for generating RoHS compliancy reports for PCBAs

## TECHNICAL SKILLS

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<b>Programming Languages</b>	Java, MATLAB, Julia, HTML, SQL, Python (Sci-kit Learn, Pytorch)
<b>Software &amp; Tools</b>	Amazon EC2, L <sup>A</sup> T <sub>E</sub> X, Altium Designer, Git, MS Office

## SERVICE

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**Poverty Alleviation Volunteer** March 2018  
Alternative Breaks, Wisconsin Union Directorate Cincinnati, OH

- Learned about how gentrification and homelessness affects residents living in Cincinnati
- Provided service to those in need

**Tutor and City Cleanup Volunteer** March 2017  
Alternative Breaks, Wisconsin Union Directorate Memphis, TN

- Helped clean public and private property through trash pickup and urban gardening
- Tutored children in an after-school program

**Urban Gardening Volunteer** March 2017  
Badger Volunteers Madison, WI

- Completed outdoor and gardening work for an energy-sustainable community center and school (Badger Rock Middle School)

## MEMBERSHIPS

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IEEE Student Membership  
IEEE Signal Processing Society Membership

## PERSONAL

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### E-bike

May 2019 – August 2019

- Converted my bike into an electric-powered bicycle using a hub motor E-bike kit
- Designed and hand-built the 48V 13S5P battery pack using 65 lithium-ion NCA (nickel cobalt aluminum oxide) 18650 battery cells

### Hobbies

- Reading, running, biking, weight training, cooking, and listening to or practicing music