

JESSICA TAWADE

Stanford, CA 94305 • (919) 454-8174 • jt658@stanford.edu • [linkedin.com/in/jessica-tawade](https://www.linkedin.com/in/jessica-tawade)

EDUCATION

Stanford University, School of Engineering, Stanford, CA
Master of Science, Electrical Engineering
GPA: 3.92

September 2020 – April 2022

Cornell University, College of Engineering, Ithaca, NY
Bachelor of Science, Electrical and Computer Engineering
Minor: Computer Science
Magna Cum Laude • GPA: 3.91

August 2016 – May 2020

Relevant Courses: Machine Learning • Artificial Intelligence • Computer Vision • Deep Multi-Task and Meta Learning • Statistical Signal Processing • Digital Signal and Image Processing • Probability and Inference for Random Signals and Systems • Linear Dynamical Systems • Data-Driven Web Applications • Object-Oriented Programming (Java)

Honors and Awards: Engineering Dean's List 2016 - 2020 • 2019 Intel Undergraduate Research Program Scholar • Semiconductor Research Corporation TECHCON 2018 Poster Presenter • Fall 2017 and Spring 2018 Engineering Learning Initiatives Undergraduate Research Award • Cornell IEEE Eta Kappa Nu Society Member

SPECIALIZED SKILLS

Programming Languages: Python, C/C++, MATLAB, R, Verilog, Julia, Java, JavaScript, HTML/CSS, SQL, TypeScript, UNIX, Visual Basic
Software/IDEs: PyCharm, Spyder, Jupyter Notebook, CLion, CodeBlocks, Confluence, Eclipse, Quartus II, MS Visual Studio
Frameworks/Libraries: Tensorflow, Keras, PyTorch, NumPy, SciPy, Matplotlib
Version Control: Git

General Programming Skills

- Implemented signal processing programs to perform cross-correlation, time-domain and frequency-domain convolution (1D and 2D), discrete Fourier transforms, fast Fourier transforms (1D and 2D), compressed sensing, and histogram equalization using Python's numpy and scipy libraries
- Wrote C/C++ and Java programs using loops, decision structures, string manipulation, arrays, sets, text file I/O, recursion, linked lists, stacks, queues, binary trees, and sorting and searching algorithms

RESEARCH EXPERIENCE

de la Zerda Group, Stanford University, *Graduate Researcher*
Advisor: Dr. Adam de la Zerda

November 2020 – Present

- Adapting the group's current image-to-image translation machine learning model to convert optical coherence tomography images into more realistic hematoxylin and eosin-stained histology-like images
- Learning to use and build generative adversarial networks in PyTorch and TensorFlow

VLSI Information Group, Cornell University, *Undergraduate Researcher*
Advisor: Dr. Christoph Studer

August 2017 – 2020

- Developed a new energy-efficient joint feature selection and classification training model using neural networks that took into account hardware constraints for analog-to-feature (A2F) conversion and non-uniform wavelet sampling
- Designed models using neural networks, random forests, Fisher scoring, and sequential feature selection in MATLAB and Python (Tensorflow) to limit the number of wavelet generators used and features selected in the training model
- Achieved 80-99% classification accuracy when applying the training model to multi-class EEG, ECG, audio, and RF data sets
- Presented poster at Semiconductor Research Corporation TECHCON 2018 and Cornell Engineering Project Showcase

ENGINEERING EXPERIENCE

Hyannis Port Research, Remote Internship, *Part-time Software Engineering Intern*

July – August 2020

- Created a C application to send orders using the NASDAQ OUCH protocol to a financial market simulator
- Presented a demo of the order sender application to the company

oneZero Financial Systems, Cambridge, MA, *Financial Software Engineering Co-op*

May – August 2019

- Reconfigured the validation system within oneZero's Hub platform to throw warnings when a user entered incorrect data
- Added a new feature to help improve filtering of orders in the Hub platform using C++

- Cornell University**, Ithaca, NY, *ECE 2100 (Circuits) Teaching Assistant* **January – May 2019**
- Facilitated and graded lab sessions about RLC circuits, differential amplifiers, and general circuit design twice a month
- oneZero Financial Systems**, Cambridge, MA, *Financial Software Engineering Co-op* **August – December 2018**
- Devised a new C++ feature to allow brokers to give customers access to view sources of incoming trades
 - Performed profiling on section of C++ production code to cut down latency of “save and apply settings dynamically” feature of oneZero’s Liquidity Hub application by 50%
 - Updated production code in C++ and TypeScript for 35 bug fixes in oneZero Financial System products
- Fidelity Investments**, Durham, NC, *Technical Intern - Software Development* **June – August 2015, 2016, 2017**
- Built a Java application to reduce time spent manually processing representative compensation data in a SQL database
 - Developed an Angular 4 UI to automate entries into Fidelity’s Hierarchy Management System

CLASS PROJECTS

- Extrapolation of Few-Shot Classification Meta-Learning Algorithms** **September – November 2020**
- Investigated how non-parametric few-shot learning methods perform on out-of-distribution (OOD) tasks when compared with optimization-based and black-box meta-learners
 - Ran OOD tasks during meta-test time for prototypical networks, model-agnostic meta-learning (MAML), and simple neural attentive meta-learner (SNAIL)
 - <https://github.com/jt658/CS330-Final-Project>
- Maze Mapping Robot Project** **August – December 2019**
- Collaborated on designing a robot to traverse a maze and collect the topography of the maze using C and Verilog
 - Won 3rd place in maze mapping competition
 - https://pages.github.coecis.cornell.edu/jt658/ECE3400_Group9_2019/
- Brain MRI Segmentation Algorithm** **April – May 2019**
- Developed an image registration and segmentation algorithm in Python to automatically segment a brain MRI scan into anatomical regions of interest
 - Applied histogram equalization, min-max normalization, weighted label fusion, and linear interpolation techniques
 - Won 2nd place in competition for most accurate segmentation algorithm
- Data-Driven Web Applications about Climate Change** **February – April 2019**
- Produced a JavaScript webpage to explore the impacts of global warming on international temperatures and sea levels
 - Constructed a JavaScript webpage to display the breakdown of gas emissions in the Netherlands from 2000 to 2017
 - Created dynamic charts and features using SVG
 - <https://pages.github.coecis.cornell.edu/jt658/cs3300project1/>
 - <https://pages.github.coecis.cornell.edu/jt658/cs3300project2/>

EXTRA CURRICULAR ACTIVITIES

- Cornell IEEE Eta Kappa Nu**, Cornell University, *General Member* **August 2019 – May 2020**
- Attended monthly meetings to discuss how to give back to the electrical and computer engineering community
 - Students who are in the top fourth of the electrical and computer engineering junior class or top third of the senior class are invited to join the society
- Expanding Your Horizons**, Cornell University, *Workshop Volunteer* **April 2019**
- Helped set up and facilitate a circuit building workshop designed for 7th to 9th grade girls
- Institute of Electrical and Electronics Engineers**, Cornell University, *Secretary* **March 2018 – May 2020**
- Took meeting notes at weekly executive board meetings and sent out weekly emails regarding community events
 - Helped organize events such as mentorship hours, internship panels, company information sessions, and community socials