

# Ashwin Devaraj

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## EDUCATION

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### The University of Texas at Austin

Aug 2017 – May 2021

*B.S. in Computer Science and Math, Turing Scholar; GPA: 3.82*

- Significant Coursework: Comp. Architecture\* \*\*, Operating Systems\*, Algorithms\*, Cryptography, AI, Advanced Data Mining, Reinforcement Learning\*\*
- Probability, Differential Equations\*, Linear Algebra, Number Theory, Real Analysis, Measure Theory, Algebraic Structures
- \* = honors, \*\* = graduate-level

## PROGRAMMING SKILLS

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- **Proficient:** Java, Python
- **Familiar:** C/C++, Haskell, OCaml, JavaScript, x86-64 Assembly
- **Other Technologies:** Spring Boot, Numpy, Pandas, Scikit-learn, Pytorch, OpenAI Gym

## RESEARCH EXPERIENCE

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### Computational Linguistics (under Dr. Jessy Li)

Feb 2020 – present

*Research assistant*

- Scraped and cleaned a dataset of medical paper abstracts and corresponding plain-language summaries from Cochrane Review
- Currently developing a style-transfer model using the BERT language model, that converts technical abstracts of medical literature into a form more accessible to the lay reader

### Neural Networks Lab (led by Dr. Risto Miikkulainen)

Aug 2019 – present

*Research assistant*

- Reproduced SVM ensemble from literature in Scikit-learn to cope with sensor drift in gas classification
- Using the NEAT algorithm to develop networks that can navigate to a source using scalar “odor” inputs

### Computational Media Lab (led by Dr. Dhiraj Murthy)

Feb 2019 – present

*Research assistant (lead investigator on current project)*

- Trained deep CNNs and non-neural classifiers to categorize tweets sent during Hurricane Harvey and detect those containing urgent calls for help
- Paper accepted to 2020 International Communication Association Conference

## INDUSTRY EXPERIENCE

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### Uber Advanced Technology Group (autonomous driving group)

May – Aug 2020

*Incoming Software Engineering Intern*

### JP Morgan Chase

Jun – Aug 2019

*Software Engineering Intern*

- Helped design web app backend in Spring Boot to reduce 6 man-hours/day of manual work in password management
- Contributed to a front-end built from scratch in React for an open-source orchestrator, and wrote microservices for it in Python

### Bentley Systems

May – Aug 2018

*Software Engineering Intern*

- Contributed multi-project build features to a GUI build tool used by many teams across the firm
- Developed C# unit tests for simulation software and aided in software migration to newer Windows systems

## PROJECTS

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### Ash Language Interpreter (C++)

May – Aug 2018

- Designed and wrote an interpreter for a statically-typed and scoped toy programming language
- Included casting, Pythonic list manipulation, recursion, robust error-handling, etc.

### Human Activity Classification (Python, Scikit-learn)

Feb 2019

- Processed high-dimensional open-source motion data from smartphones to predict the activity being performed
- Used correlation matrices to pick 80 relevant features from among 500+
- Final ensemble classifier achieved 96% accuracy on test dataset

## EXTRACURRICULAR ACTIVITIES

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### **Directed Reading Program**

Feb 2019 – present

- Work with a grad student mentor to learn advanced math topics, with presentation at end of semester
- Topics Covered: theory of computation, calculus on manifolds, differential geometry

### **Machine Learning and Data Science Club (MLDS)**

Sep 2018 – present

### **Information and Systems Security Society Club (ISSS)**

Sep 2018 – present

## HONORS AND AWARDS

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### **Machine Learning Semester Competition: 2nd, 1st Place**

Feb 2019, Feb 2020

### **Sandia Space Blimp Programming Contest: 2nd Place**

Sep 2019

### **UT DataHack (Data Science Hackathon): 3rd Place**

Apr 2019

### **CTF Security Competition: 3rd place**

Feb 2019