

## Abhinav Madahar

---

abhinavmadahar@gmail.com  
+1 (480) 399-4228

### Education

**PhD** in Computer Science  
(still waiting on admissions decisions)  
September 2024 – May 2029

**BS** in Computer Science and Mathematics (double major)  
Rutgers University–New Brunswick  
September 2017 – May 2021

### Research in industry

Johnson & Johnson  
*Data Science Co-op*  
Mentor: Walter Cedeño, PhD

April 2020 — September 2020  
Titusville, New Jersey

- Developed the first machine learning model to reliably detect glaucoma in a patient without a retinal scan
- Achieved 81% accuracy, 85% sensitivity, and 75% specificity on a data set where half the patients had glaucoma
- Used data consisting of disease diagnoses, drug usage, medical device usage, and more
- Helped prepare patent application for the model

Oracle  
*Data Science Intern*  
Mentor: Dorian Puleri, PhD

May 2019 — August 2019  
Santa Clara, California

- Developed autoregressive time series model to predict cloud server traffic
- Used an RNN- and CNN-based sequence-to-sequence model, which was able to make more nuanced forecasts than predecessor models
- Evaluated model using a variety of metrics, including mean absolute percent error
- Created sequence-to-sequence models to project future usage requirements for soon-to-be-retired parts
- Automated data processing pipeline which was previously done manually every day, for which I earned a Peer-to-Peer award

Johnson & Johnson  
*Medical Devices Data Science Intern*  
Mentor: Sparkle Russell-Puleri, PhD

May 2018 — August 2018  
Somerville, New Jersey

- Helped develop human activity recognition model by improving model accuracy and reducing training time
- Used a combination of LSTM, GRU, and one-dimensional CNN layers
- Evaluated model using AUC and F1-score
- Developed model which predicts hospital readmission using traditional machine learning techniques (e.g. naive Bayes)
- Used Jupyter notebooks to develop models and visualize results, including model performance and training time

- Used TensorFlow for deep learning and sklearn for traditional machine learning

**Research in academia**

Research Assistant under Prof. James Abello Monedero      May 2020 — August 2020

- Conducted research in graph theory and data visualization
- Studied visualizing graphs which are too large to plot by summarizing them
- Learned how to manipulate large graphs using NetworkX with Python
- Communicated high-dimensional data using novel visualization techniques
- Wrote a final report describing my work

Research Assistant under Prof. Sungjin Ahn                      September 2018 — May 2019

- Studied multiagent systems
- Focused on moving an agent in a virtual environment. The agent needed to reach a moving goal while avoiding moving obstacles
- Used a variational autoencoder to represent the environment in a latent space
- Applied a CNN-based model on the representation to predict the future environment
- Applied Monte Carlo tree search to the prediction to move the agent
- Presented my results in group meetings with visualizations

Research Assistant under Prof. Gerard de Melo              September 2017 — August 2018

- Studied document summarization and information retrieval
- Read and reproduced papers on document summarization with abstractive and extractive techniques
- Used Perl to manage data files
- Learned about TensorFlow and TensorBoard
- Helped a graduate student write UNIX shell scripts for information retrieval project
- As part of a grant-writing class, I wrote a grant application for a novel research project under Prof. de Melo

**Non-research work**

Academia.edu

*Software Engineer*

July 2021 — March 2022

San Francisco, California

- Worked across the stack, on both the frontend and backend
- Used Ruby on Rails on the backend and Typescript with React on the frontend
- Helped develop upload flow for Academia.edu's new Courses product
- Developed administrator page for user-generated content

<b>Awards and honors</b>	Oracle Peer-to-Peer Award	July 2019
	Awarded for my work in automating a data processing pipeline within Oracle's supply chain with Python	
	Google Data Science Award and HopHacks 3 <sup>rd</sup> -place Award	February 2018
	Won as part of a hackathon team for developing a machine learning model to predict stroke survival	
<b>Invited talks</b>	"Pedagogical Conversational Agents"	August 11, 2023
	Delivered at AIDeathon, organised by AI Consensus under Minerva University	
<b>Service</b>	AI Classroom Challenge	November 2023
	Judged students' proposals for educational use-cases of AI	
	Rutgers IEEE	September 2017 — May 2018
	Co-organized weekly undergraduate machine learning research paper colloquium	