

# VIBHU AGRAWAL

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## EDUCATION

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### University of Maryland — College Park, MD

GPA: 3.92/4.00

*Bachelor of Science in Computer Science with specialization in Machine Learning with Honors*

*Expected May 2024*

*Minors in Advanced Cybersecurity (ACES), Computational Finance*

#### Relevant Coursework:

Artificial Intelligence, Compilers, Natural Language Processing, Parallel Computing (C/C++, CUDA), Reinforcement Learning (OpenAI Gym), Computer Vision (NumPy, PyTorch), Machine Learning, Penetration Testing (Python, Powershell, Metasploit), Algorithms, Data Science (Scikit-learn, Pandas), Computer Systems (C, Assembly), Object-Oriented Programming

## EXPERIENCE

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### Amazon: Software Development Engineer Intern | Kotlin, Typescript

May 2023 - Aug. 2023

- Designed and implemented a complete end to end workflow for a new feature to improve customer experience by allowing advertisers to view predictive analytics on the sizes of targeting audiences
- Leveraged AWS cloud services including Lambda, DynamoDB, EventBridge, and S3 to architect a resilient, scalable solution
- Ensured software reliability and functionality by writing comprehensive unit tests utilizing Mockk and Mockito, validating code integrity and minimizing potential errors

### Maryland Robotics Center: Research Intern | Python

Jan. 2022 - May 2023

- Utilized historical data from campus electric scooters to develop graph based path planning algorithms for global navigation spanning medium to long distances in self driving scooters
- Presented work as first author in paper submitted to IROS 2023, showcased during the Maryland Robotics Center Research Symposium, and integrated into a Masters thesis

### Hack4Impact: Tech Lead | ReactJS, NodeJS, Bootstrap, Firebase

Jan. 2021 - May 2023

- Developed websites in a team environment for non-profit organizations like Inspire and Empower, which works to reduce women's barriers to enter STEM fields, Sustainability Solutions Group, and Step Up, a free tutoring service
- Led a team of 6 engineers in development of a project for a client that used Airtable, Firebase, ReactJS over 9 months

### Amazon Web Services: Software Development Engineer Intern | Typescript, ReactJS, NodeJS

May 2022 - Aug. 2022

- Developed an internal portal for use by 200+ AWS service teams that eliminated a large portion of open ticket backlog
- Created web forms that allowed for metric creation and validation for service performance monitoring, used internal APIs to fetch data, cut dashboard tickets, and developed unit tests using Mocha
- Reduced time required to process AWS Dashboard metric request tickets by 80% from 35.2 days to just 7 days

## PROJECTS

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### Memaid | Flutter, Python, WebRTC, Google Cloud

- Developed mobile app to assist those with memory loss through facial recognition and conversation summarization
- Worked primarily on the computer vision and natural language processing backend, using Haar Cascades for facial detection, a neural network for facial recognition, and named entity recognition for conversation summarization
- Outcompeted 90 other teams for Best Use of Google Cloud and Best Social Good Hack prizes at Bitcamp hackathon

### MLP and CNN for Handwritten Digit Classification | Python, OpenCV, PyTorch

- Created a fully connected neural network (MLP) from scratch using classes and objects in Python, used sigmoid activation function, wrote back propagation algorithm using Jacobian matrices and trained on 50K MNIST images
- Achieved 94% test accuracy on the MLP and 99% test accuracy on a Convolutional Neural Network using PyTorch after using regularization, data augmentation, and dropout to correct for overfitting

## SKILLS

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**Languages:** Python, Java, Kotlin, Typescript, ReactJS, C, Swift, SQL, HTML, CSS, Javascript, MATLAB, Ruby, R, Rust

**Tools:** Git, OpenCV, Jira, Bootstrap, PyTorch, Tensorflow, Tailwind, XCode, MongoDB, Firebase, VSCode, Jupyter, Linux