KAI MALLOY

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SUMMARY

Software Engineer with over 2 years of experience in building data pipelines with Python and AWS as well as backend development with C#, DotNet, and GraphQL. Additional experience in data analysis and visualization. Great interpersonal skills and thrives in a people facing role, working closely with teammates and clients.

PROFESSIONAL EXPERIENCE

Pacific Northwest National Laboratory | National Security Directorate — Feb. 2022 - Present
Software Engineer II | *Jan. 2024 - Present*
Software Engineer I | *Feb. 2022 - Dec. 2023* — *Seattle, WA*

- Built a Python service for a threat recognition platform that can feed over 1 million images to machine learning models using Python, RabbitMQ, Sagemaker, and S3
- Re-engineered a data pipeline with 20+ AWS services by deploying Lambdas that extract and load data into DynamoDB, publish metrics to Cloudwatch, and hook up to AppSync
- Received the Outstanding Performance Award for driving the technical direction in creating 15+ software features for a threaded Python service that dispatches images over ZeroMQ to C++ applications and Flask image viewers
- Acquired project funding for 2024 by leading quarterly presentations to the Department of Homeland Security sponsor in a concise and high level manner using graphs and diagrams

DataLab Group at UC Irvine | PI: Prof. Padhraic Smyth, Graduate Mentor: Casey Graff — Mar. 2020 - Jun. 2021
Undergraduate Researcher — *Irvine, CA*

- Built novel convolutional and recurrent neural networks for wildfire prediction using PyTorch, trained on 150,000+ images of wildfire, weather, topography, and land cover data from NASA satellites
- Created a dynamic animation script for forecasting wildfire spread at different locations and times using Python

Apple — Jan. 2019 - Jul. 2019
iPhone Quality Engineer Intern — *Cupertino, CA*

- Wrote visualization scripts and built 2 GUI applications using PyQt for investigating iPhone failure analysis data
- Optimized a large scale data processing task that took 10 minutes using internal tools down to 5 seconds with Python

EDUCATION

University of California, Irvine | B.S. Computer Science | Specialization in AI — Sept. 2017 - Jun. 2021
Chancellor's Award | ICS Honors | **GPA: 3.85/4.00** | Deans List: 2017-2021
Relevant Coursework: Information Retrieval, Design and Analysis of Algorithms, Machine Learning and Data Mining, Neural Networks and Deep Learning, Algorithms for Probabilistic and Deterministic Graphical Models

SELECTED PROJECTS

CNN and RNNs for Active Wildfire Forecasting: ICS Honors Program Thesis — Jun. 2021

- Developed a recurrent addition to a convolutional neural network that can predict wildfire spread at 3 hour, 4 hour, and 6 hour intervals given 12 hour input data
- Information and Computer Sciences Honors Program with the Summer Undergraduate Research Grant

TECHNICAL SKILLS

Programming Languages	Python, Java, C#, SQL, HTML, CSS, Typescript
Tools	AWS (EC2, S3, Lambda, SQS, Sagemaker, ECS, AppSync, DynamoDB, RDS, IAM), PostgreSQL, GraphQL, RabbitMQ, Docker, Flask, .NET, PyTorch, Pandas, Git
Skills	Data pipelines, Threading, Data Analysis and Visualization, Machine Learning, Shell Scripting, Virtual Machines, Agile

ADDITIONAL INFORMATION

Fulbright Australia 2021 Semi-finalist | Bilingual: fluent in Japanese (spoken, written), English