Keshav Ganapathy

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EDUCATION

University of Maryland – College Park Aug. 2021 – Dec 2024

B.S. in Computer Science (Machine Learning, with Honors) & Mathematics, Minor: Computational Finance
- **Relevant Coursework:** Advanced Data Structures, Advanced Algorithms, Machine Learning, Real Analysis, Data Science, Game Theory, Computer Systems (C/Unix/Assembly), Discrete Mathematics, Programming Languages (Ruby, OCaml, Rust)

WORK EXPERIENCE

Capital One **College Park, MD**

Machine Learning Engineer Intern *June 2024 – Present*
- Engineered a user information timeline, bettering customer experience, using **PySpark** on customer data in **AWS S3**, processing over **330M+ daily entries** and improving query speed by **300%** through serialization, caching, and partitioning.

University of Maryland **College Park, MD**

Teaching Assistant (TA), CMSC351: Algorithms *Aug 2023 – Dec 2023*

Raytheon **Arlington, VA**

Software Engineering Intern, BBN Technologies *May 2023 - August 2023*
- Refactored and enhanced an internal tool by leveraging **CesiumJS** and **Python** to display **100+** satellites and their maneuvers from an **SQLite** database, resulting in novel 3D globe, map, and satellite visualizations.
- Implemented and optimized **Orekit** orbital propagation algorithms in **Python** to generate training data for space-object-collision detection machine learning models to accept covariance matrices for more accurate predictions

Cigna **Bloomfield, CT**

Software Engineering Intern *May 2022 - March 2023*
- Completed full-stack tickets for myPassport, Cigna's main pharmacy benefit management tool for worker's compensation.
- Led **10+ interns** in the development of 4Sight, an internal web app that provides Cigna employees information on in-person attendance. 4Sight **increases employee retention** rate and promotes community amongst employees.

University of Maryland **College Park, MD**

Researcher *June 2020 - Aug 2020, June 2021 - Nov 2021*
- Quantified gender and institutional bias in the conference paper review process using a web-scraped dataset of over **8000+** papers utilizing the **OpenReview API**, **Selenium**, Monte Carlo simulations, and logistic regressions.
- Co-first-authored a highly impactful paper that was presented at the **ICLR 2021 townhall** and selected as a **lightning talk** at the **NeurIPS 2020** Workshop on Navigating the Broader Impacts of AI Research. Papers and talks analyzed and quantified disparities in the review process based on factors such as gender, institutional affiliation, etc.

PROJECTS

GenAI (Element Solutions, Co-Op Fall/Spring 2024) | *AWS, FastAPI, React, Ollama, RAG, and ChromaDB*
- Built, dockerized, and deployed an ingest and **RAG-based** Q&A service on **AWS EC2** that pulls files from **S3** and fine-tunes **HuggingFace embeddings**, allowing for fast and accurate customer Q&A about Element Solutions' LOBs and past work.

CityWorks (Element Solutions, Co-Op Spring 2022) | *AWS, Spring Boot, React, and MariaDB*
- Successfully worked in a team of **6+ engineers** using **agile scrum** to create a full stack application using **React**, **AWS**, and **MySQL** to allow **hundreds of citizens** to request various social services (e.g trash pick up)..
- Designed the database schema and developed **RESTful API** endpoints using **Spring Boot** in **Java** for MySQL.

WebPoint Portfolio | *HTML, CSS, Pug, SCSS, JavaScript*
- Founded WebPoint, a volunteer organization that developed **5** websites for local enterprises, receiving **100+** views per week.
- Spearheaded a tech team of **9+ engineers** to conceptualize, design, and implement all website features, including an in-browser text editing tool, allowing administrators to edit their website without technical understanding.

SKILLS

- **Languages:** Python, Java, C/C++/C#, JavaScript, SQL, MATLAB, SASS, OCaml, Ruby, Rust, Assembly (MIPS), LaTeX
- **Frameworks/Libraries:** PySpark, Pandas, NumPy, TensorFlow, Scikit Learn, Pytorch, Flask, NodeJS, React, Springboot
- **Tools & Technologies:** Git, Postman, Docker, Jira, Confluence, Maven, MS Office/GSuite

PUBLICATIONS & PREPRINTS

- **Ganapathy, K.**[1], et al. (2021). An Investigation into the Role of Author Demographics in ICLR Participation and Review.
- **Ganapathy, K**[1]. (2020). A Study of Genetic Algorithms for Hyperparameter Optimization of Neural Networks in Machine Translation. arXiv preprint arXiv:2009.08928.
- Tran, D.[1], Valtchanov, A.[1], **Ganapathy, K.**[1], et al. (2020). Analyzing the Machine Learning Conference Review Process. NeurIPS 2020 Workshop on Navigating the Broader Impacts of AI Research.