Vidushi Vashishth

Google Scholar Profile | Github | Website[vidushivashishth.github.io]

Experience

Google **Aug 2023 – Present**

Software Engineer (L4) *Seattle, USA*

- Contributed to the development of Security Health Analytics. Delivered Simulation APIs that detect policy violations in customer test assets for the India-based governance team's feature: Infrastructure as Code (IaC) Validation. IaC Validation empowers SCC premium customers to prioritize security before code reaches production. Received a spot award and Customer Empathy award for fast delivery of the APIs.
- Contributed to the development of backend infrastructure for Cloud Security Insights enabled by Security Graph to help secure cloud customers from vulnerabilities. Actively contributed to the design, and development of the product from scratch and helped it productionize and launch. Awarded several peer awards from team members and TLs in the process.
- Designed, implemented, and scaled scheduling functionality responsible for ensuring regular cadence of scanning customer's cloud assets for vulnerability detection at configurable intervals. The scheduling service is also responsible for stopping this execution for offboarded customers. Onboarded around 1300 customers without a single error in scheduling. Awarded a spot award for successful delivery of the product.
- Implemented, productionized, and scaled a custom query editor empowering customers to write free-form semantically correct queries for security related context of their cloud infrastructure. This a monumental feature that bridges the gap with competitor products. This feature also improved internal developer workflow by helping oncalls debug failures easily using the query engine.

Google **May 2022 – Aug 2022**

Software Engineering Intern *Mountain View, USA*

- Worked on mitigating storage and compute costs of storing wasteful data in the Play Analytics backend. Designed and implemented a multithreaded concurrent data classification and filtering RPC service which was debuggable, could be enabled or disabled, and resulted in saving 10% of the total storage costs.
- Awarded a return offer to join full-time.

Adobe Systems, India **Jan 2020 – Jul 2021**

Software Development Engineer II *Noida, India*

- Contributed to production and maintenance of backend services on top of Postgresql database, written in **C++** for Adobe's Digital Marketing product Campaign.
- Delivered independent features for the product used by over 3k customers by collaborating across teams including product management, UI designers, and engineering teams handling dependent services.
- Contributed to the development of the Reporting service for Adobe's Product Campaign. This service was used by 35K customer domains. Extensively coded in **Java** for the same.
- Identified and reduced security vulnerabilities in the Kafka-based framework using scripting languages (**Python**). Helped uphold GDPR compliance, ensuring zero compliance breaches for the European customers which were 30% of the total customer base.

Adobe Systems, India **Jun 2018 – Jan 2020**

Software Development Engineer *Noida, India*

- Contributed to the *colocation* project for Adobe's digital marketing product Target. Was one of the 3 members team working towards migration from Apache's Sling-based framework to Spring Boot which lead to mitigation of bottlenecks and decreased response time of backend APIs.
- Delivered Proof of Concept for compatibility between Backbone and React UI components in Target's UI for an upcoming technology stack upgrade.

Samsung Research Institute **Jun 2017 – Jul 2017**

Software Development Intern *Bangalore, India*

- Created an image processing-based Tizen application GUI, and optimized its backend functionalities which led to lesser response time from backend APIs.
- Awarded a return offer to join full-time post graduation.

Selected Research Experience

Systems for Artificial Intelligence Lab at GeorgiaTech **Jan 2023 - May 2023**

Research Assistant *Atlanta, USA*

- Worked on a novel model checkpoint compression algorithm (Inshrinkerator) which traverses the compression and accuracy tradeoff space. This is in-training compression, distinct from post-training quantization techniques. Inshrinkerator consistently achieves a better tradeoff between accuracy and compression ratio compared to prior works, enabling a compression ratio up to 39x and withstanding up to 10 restores with negligible accuracy impact in fault-tolerant training. Advisor: **Prof. Alexey Tumanov**. **Paper** presented at **ACM SOCC, 2024.**
- Created a novel Federated Learning methodology that performs network adaptive and distributed pruning of the model to better utilize the variable per-client network conditions while maintaining comparable accuracy to the baseline model. **Project Report.**

Entertainment Intelligence and Human-Centered AI Labs GeorgiaTech **Aug 2022 - Aug 2023**
Research Assistant *Atlanta, USA*

- Contributed to development of Creative-Wand assistant, an AI co-creativity transformer's based agent that automatically generates stories guided by the user's goals and input. Advisor: **Prof. Mark Riedl**. **Won the best paper at ICCC, 2023.**
- Worked on hate speech understanding using Multimodal attention networks. Used PCA to perform dimensionality reduction on input 2048 ResNet features. Used Computer Vision techniques for data preprocessing and analysis. Performed ensembling to improve model performance. Used GradCAM for model attention visualization on input images. [**Presentation link**]

Selected Publications

The complete list of previous publications can be found on **Google Scholar.**(*Citations: 432*)

- A. Agrawal, S. Reddy, S. Bhattamishra, V. Nookla, **V. Vashishth**, K. Rong, A. Tumanov, "Inshrinkerator: Compressing Deep Learning Training Checkpoints via Dynamic Quantization," published in *ACM Symposium on Cloud Computing,* 2024. [**paper**]
- Z. Lin, U. Ehsan, R. Agarwal, S. Dani, **V. Vashishth**, M. Riedl, "Beyond Prompts: Exploring the Design Space of Mixed-Initiative Co-Creativity Systems", presented at *International Conference on Computational Creativity,* 2023. [**paper**]
- D.K. Sharma, J.J.P.C. Rodrigues, **V. Vashishth**, A. Khanna, A. Chhabra,"RLProph: a dynamic programming based reinforcement learning approach for optimal routing in opportunistic IoT networks," published in *Wireless Networks, Springer,* 2020. [**paper**]
- **V. Vashishth,** A. Chhabra, DK. Sharma,"A Machine Learning Approach Using Classifier Cascades for Optimal Routing in Opportunistic Internet of Things Networks", presented at the *16th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)*, Northeastern University, Boston, USA, 2019. [**paper**]
- **V. Vashishth,** A. Chhabra, DK. Sharma,"GMMR: A Gaussian Mixture Model Based Unsupervised Machine Learning Approach for Optimal Routing in Opportunistic IoT Networks", published in *Computer Communications, Elsevier*, 2019.[**paper**]

Leadership and Awards

- In a 2 year tenure at Google, awarded **customer empathy bronze winner**, **3 spot bonuses**, **5 peer bonuses**, and **1 kudos**.
- **Invited to chair session at ACM SOCC.** Moderated a session with 6 research talks at the conference (2024).
- **Narotam Sekhsaria Foundation Scholarship recipient.** Awarded to 15 applicants from 6000+ nationwide (India) to pursue higher education (2021).
- **Research and Patent Award** granted by Delhi University for exceptional research contributions to top 5 undergraduate researchers from a batch of 1700 students.
- **Bootcamp Hackathon Winner** in the batch of 80 New Graduate Employees at **Adobe** (2018).
- **IBM National Challenge Winner**, held at Research Showcase, IIIT Delhi. Created an IBM Watson powered Banking Assistant **Chatbot** (2017) that beat 10 other teams in this nationwide hackathon.
- **One of the top 5** meritorious students in a batch of 300, awarded by **Delhi University** with Merit Scholarship for undergraduate education (2017).

Education

Georgia Institute of Technology **Aug 2021 - May 2023**
Masters of Science in Computer Science, ***CGPA: 4.0/4.0*** *Atlanta, Georgia*
Relevant Coursework: Systems for ML, NLP, ML, Big Data Systems, AI for Storytelling, GameAI

Netaji Subhas Institute of Technology, University of Delhi **Aug 2014 – May 2018**
Bachelors of Engineering in Information Technology, ***CGPA: 8.92/10*** *Delhi, India*

Programming Skills

Languages: Java, Python, C++
Big Data/Databases: Kafka, Postgresql, Druid, MySQL, Redis
Techonologies/Frameworks: Pytorch, ML, Deeplearning, Systems for ML, Spring Boot
DevOps/Tools: Salt, Git, Dockers, Linux
Google specific technologies/frameworks:Boq, Pod, Flume, PromiseGraphs, gORM, etc.