Navi Tansaraviput

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U.S. Permanent Resident (Green Card)

Software engineer with 9 years of experience, including 7 years in distributed systems, real-time data processing, and networking infrastructure, plus 2 years of industry and research work in ML and AI. Strong focus on reliability, scalability, and performance optimization.

Education

- **Massachusetts Institute of Technology** Cambridge, MA
  Bachelor of Science in Electrical Engineering and Computer Science *June 2015*

Experience

- **Google**, Software Engineer

  Google Pub/Sub is the internal messaging service that also serves as Cloud Pub/Sub backend. New York, NY, *May 2022 – Present*

  - Led critical infrastructure improvements for exactly-once delivery, eliminating message duplication for subscriptions with previous seek requests.
  - Designed and implemented auto-sharding integration for subscriber statistics requests, achieving 5x improved request affinity and 60% memory reduction. Drove multiple improvements to backlog stats staleness detection and resolution.
  - Led and supervised the the public rollout of data residency compliance initiative to ensure that customer data is stored and processed within the allowed regions, enabling services for customers with highly regulated workloads (EU, KSA). Landed Regional Endpoints for EU data residency compliance and designed a standardized deployment framework that reduced future engineering effort by 75%, while serving as the point of contact for cross-team partners.
  - Launched multiple services supporting various new features, including: Kinesis Ingestion to Cloud Pub/Sub, a separate forwarder service for Cloud Pub/Sub Cross Region Replication to enhance its resilience against regional outage.
  - Extended Checksum to Pub/Sub Storage, eliminating permanent data corruption. Resolved critical customer issues and improved data integrity.
  - Mentored STEP interns and guided technical implementations for Cloud Pub/Sub to BigQuery integration with BigQuery table schema and Avro logical types schema support.

  Marconi SPGW serves as the control plane functionality supporting data connections. Mountain View, CA, *Jan 2019 – May 2022*

  - Architected voice charging data records pipeline for single and multi-bear scenarios, achieving 50% storage optimization while maintaining regulatory compliance.
  - Designed and implemented weighted load-balancing system for SBC servers, percentage-based voice traffic redirection, and Vo4G Agent using Peregrine to support Vo4G when devices do not have VoLTE stack.
  - Designed real-time voice quality metrics system with dataplane sampling, improving issue detection and evaluation.
  - Led Icmpv6 service framework migration from asynchronous to synchronous architecture, improving observability and reducing customer issues by 20%.
  - Implemented critical VoLTE, VoWiFi, and Vo4G functionality, including handover flows, GTP interfaces.
  - Led operational improvements initiative, implementing enhanced anomaly detection and experiment configuration management enabling rack-specific rollouts.

  Google Health Pathology (20% Project) Palo Alto, CA, *Jun – Aug 2020*

  - Integrated slim ResNet ML models into cancer diagnosis pipeline using Tensorflow, implementing end-to-end testing and performance benchmarking against ResNet implemented with Keras.

- **Groupon**, Software Development Engineer, *Fraud Detection* Palo Alto, CA, *Aug 2016 – Jan 2019*

  - Developed real-time fraud detection platform, reducing latency by 60% through request parallelization. Onboarded three additional fraud detection signals and implemented automated prediction system in Ruby on Rails.
  - Led the rearchitecture of order pending review caching system from polling to push-based, minimizing cache staleness and improving system performance.
  - Developed a full-stack web application to allow the operation team to review orders manually and interact with Orders service systems in Ruby on Rails and JS.

- **MIT EAPS Signals and Systems Group**, Research Assistant, *SLOOP* Cambridge, MA, *June 2015 – Aug 2016*

  - Developed relevance feedback algorithms, and automatic image recognition architecture for SLOOP, a crowd-sourced image retrieval engine for animal biometrics in Matlab and Python under the supervision of Dr. Srinivas Ravela.

- **MIT CSAIL**, Undergraduate researcher, *Assistive Devices for Healthcare* Cambridge, MA, *Sep 2014 – June 2015*

  - Analyzed the data that had been collected from the non-invasive monitoring sensors (FSR/Emfit/Accelerometers) deployed on patients' wheelchairs using wavelet analysis and developed algorithms for heart rate and respiration rate estimations, and breathing suspension detection.

- **Oracle America, Inc.**, Software Engineering Intern, *Oracle Linux* Redwood Shores, CA, *June – Aug 2014*
  - Implemented automated version control presubmit verification for kernel developers to improve commit consistency and correctness in Python.
  - Co-implemented the fix for a clock synchronization issue in Oracle linux in C++.
- **Akamai Technology, Inc.**, Engineering Intern, *Platform Operation* Cambridge, MA, *June – Aug 2012*
  - Built an analytic visualization web application to process and display log messages using HTML,CSS,JS with Python,PostgreSQL backend.

Awards

- **Analog Devices Undergraduate Research and Innovation Scholar**: Sep 2014 - June 2015

Skills

- **Languages**: C++20, Python3, Shell Scripting (bash, zsh), SQL, Ruby on Rails, Java, JavaScript/Typescript, HTML, CSS

Activities

- **Google Technical Interviewer**, *Jul 2019 – Present*
- **Microsoft TEALS Program Instructor**, Millennium High School, New York, NY, *Sep 2024 – Present*: Teaching Introduction to Computer Science to a class of 23 high school students.
- **Technical Mentor for Google CorpEng High School Tech Apprentice Program**, Mountain View, CA, *Jan 2019*: Mentored students with their DialogFlow and Typescript projects.
- **FIRST Tech Challenge Robotics Team Mentor**, Waldorf School of the Peninsula, Mountain View, CA, *Oct 2017 – Feb 2018*: Mentored high school students in the robotic club to build a robot controller to compete in FIRST Tech Challenge robot competition in Java.