Vaarnan Drolia

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I build things.

Work Experience

Google Inc.   **London, UK and Mountain View, California**
Staff Engineering Manager, Wear OS by Google   *July 2016 - September 2023*
- Led team of 7 software engineers for the phone companion app to the smart watch
- Successfully pushed back on leadership decision to layoff 5 members (Google 2023 layoffs)
- Founding member of team to launch Wear OS for China (now 2nd largest market for smartwatches); app successfully deployed globally in all markets
- Key role in ensuring the rebrand of Android Wear to Wear OS, essential to highlight that Wear watches are cross-platform and can be used with iPhones
- Developed and launched features to make the watch "smart" - internet to the watch (Bluetooth proxy), payments via Google Pay, Calendar, Contacts and GPS location
- Technical Architect of componentization for the smartphone app which will push the boundaries of products that watch partners will build in the future
- Process improvements to enable team to release new software updates monthly from once every 6 months
- Led team to a testing culture and focus on product quality, improve testing of code from 0% to 90%, 2-week sprints, standups and other agile practices

Google Inc.   **Zürich, Switzerland**
Software Engineer, Search and Knowledge   *November 2014 - July 2016*
- Led several key improvements to Google Search results powered by data from the Knowledge Graph, my code still runs with every Google search, and every page scraped by the search engine (aka the Internet)
- Led infrastructure advancements in Google Knowledge Graph data processing to save several days worth of compute resources per job
- Tech Lead of Knowledge Understanding Verticals effort and fostered cross-company collaboration with teams in Android, YouTube to launch products for Google IO
- Google Search struggled with regional ambiguities (eg "boots (pharma uk)" vs "boots (shoes)". I deployed global scale project for region aware language interpretation which improved search results and text interpretation for various platforms like Ads, YouTube
- Built a Biasing API for Search's text understanding system which is now widely used for user query understanding in major Google products like Maps, YouTube, Assistant, Shopping, Finance

Google Inc.   **Cambridge, Massachusetts**
Software Engineering Intern, Play Magazines   *May 2013 - August 2013*
- Developed a new Play Newsstand client for Android TV
- Added APIs to the back-end services to support the new Android client
- Became proficient in a range of Google technologies such as ProtocolBuffers, Guice and Guava

National University of Singapore   **Singapore**
Teaching Assistant, Software Engineering   *August 2012 - May 2014*
- Guided 45 students in 11 teams (over three semesters) as they made their first real-world application
- Initiated classroom discussions on several topics such as code quality, software testing, design patterns

National University of Singapore   **Singapore**
Research Assistant, Data Mining and Visualization   *May 2012 - July 2012*
- Developed visualizations of Twitter and Facebook data using multi-level Tag Clouds with d3.js
- Deployed the back-end server on Apache Tomcat + Jersey and the Front-End on Heroku in PHP
- Integrated the Google Maps API to add location centric information to the data

IBM Corporation   **Singapore**
Software Engineer, Tivoli Division   *May 2011 - July 2011*
- Developed a command-line interface for the Tivoli Test Automation Framework using Python and Java
- Enabled QA to deploy servers and execute tests on remote worker machines without writing any code
- Converted Jython into CPython to improve speed and responsiveness by several orders of magnitude

Education

National University of Singapore   **4.48/5.00 (GPA)**
Bachelor of Computing (Honours) in Computer Science   *August 2010 - May 2014*
- Dean's List - Sem 2, 2012-13
- **Top 2%** in the Software Engineering course out of 250 students
- **Top Student** in the Computer Security course out of 80 students
- **Top 5%** in the Parallel and Distributed Algorithms course out of 60 students
- Singapore Airlines - Neptune Orient Lines Scholar

St. James' School
Higher Secondary Education, 96.25%   *April 1997 - May 2010*
- **100%** in Computer Science for both 'A' and 'O' Level Equivalents
- **97.2%** in Indian 'O' Level Equivalent (ICSE)

Project Papers

- Threads vs Events for Server Architectures   2013
- Enhancing NUSNET using Two-Factor Authentication   2012
- Analyzing Low Level Issues Relating to the Security of RFID/NFC Cards 2012
- Analysis of the BFS Scheduler in FreeBSD   2011

Project Experience

HTML5 Applications
- LearnLobe - Digital Whiteboard with video-conferencing for students (using WebRTC)
- Kontitude - Conference organizer to manage event attendees using location and data services
- MysteryStory - Game which promotes innocuous learning of AED

iOS Applications
- KBuddy: iPad Karaoke application with a Ruby on Rails + MongoDB backend
- Huff n Puff: iPad "clone" of Angry Birds with the implementation of a Physics Engine

CS2103 (Software Engineering): Led a team of 4 to develop - QuickToDo Task Manager in Java
- Project inducted into the Hall of Fame for the course
- Developed natural language input, software updating and Google Calendar Integration

CS1101S (Programming Methodology):
- Offered to only 60 students in **MIT Scheme** language and placed 2nd in Robotics competition

Course Work

- **Parallel and Distributed Algorithms** - Byzantine consensus, Self-Stabilization, Non-blocking data structures, Mutual Exclusion, ABA Problem, OpenMPI, Matrix multiplication, Intel SIMD
- **Distributed Systems** - Voting and Consensus algorithms, RMI, Multicast, Gossip Protocols, Chord, Distributed Hash Tables, P2P Networks, Vector Clocks, Consistency Models
- **Security** - Explored attacks like buffer overflows, heap overflows, data fuzzing, XSS, CSRF and DoS Attacks, Vulnerability Scanners, ARP Poisoning and IP Spoofing, SQL and Code Injections
- **Machine Learning** - Inverse Document Frequency, Naive Bayes, Genetic Algorithms, Artificial Neural Networks, Gradient Descent

Tech Skills

- Java, Swift, Objective-C, Python, C++, C, Scheme, JavaScript, PHP, HTML5
- Experience with a wide range of operating systems in both Windows and Unix Environments

Awards and Accomplishments

- UK Global Talent - Exceptional Talent Visa recipient   2021
- PyCon Asia - LucasFilm Top Student Programmer   2012
- Tata Consultancy Services IT Wiz Quiz - National Winner from 3.5 million participants   2009

Academic and Service

- Medal for Academic Excellence - National high school examination (ISC)   2010
- Bishop's Medal - Top Student National secondary school examination (ICSE)   2008
- Principal's Award for the Most Outstanding Pupil   2009-10
- C.V. Shunker Award for Integrity and Service   2009-10
- Reverend Canon Basil Manuel Award for the Best Scout   2009-10