Pulkit Bhuwalka

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Education

Carnegie Mellon University, School of Computer Science   December 2014
MS, Intelligent Information Systems, LTI (Current QPA - 3.57)

Research (Ubiquitous Computing Lab at Human Computer Interaction Institute - CMU)
- Design and implementation of a Machine Learning model execution framework on Android. Consists of an Android Library with Weka ported to Android and a JVM/MySQL backed server.
- Allows app developers and researchers to develop models and execute them transparently on the phone/server.

Accomplishments
- **Teaching Assistant** for the graduate Machine Learning course.
- *Machine Learning* project - Activity recognition on smartphone. (Accuracy of 97.8%)
- *Computer Vision* projects - Scene classification, SIFT implementation and Image stitching, Video tracking, Artist classification by looking at paintings.
- *Computer Graphics* - Ray Tracing, Physics Engine, Surface Sub-division.
- *Information Retrieval* - Indri search engine language implementation, BM25 and Language Models, PageRank and Document clustering/classification, Collaborative Filtering

Bachelor of Engineering, Information Science and Engineering (First Class with Distinction)
BMS College of Engineering, Bangalore, India   July 2009

Core CS courses - Algorithms, Data Structures, Networks, Operating Systems, Distributed Systems, Compilers etc.

Employment

Google Inc, Intern Software Engineer, May 2014 - August 2014
- Image Recognition system to decode barcodes in ad-hoc cell phone images for automatic form-filling. *Improved recognition rate from 60% to 88%.*
- Code incorporated as part of core visual search.

ThoughtWorks Inc., Application Developer (Sr. Con), February 2012 – July 2013

ICT4H (Information and Communication Technology for Health) Research Team
- Individually developed a UI framework to allow apps developed on the server-side (JSP/GSP) and client-side (HTML5/Client MVC) to co-exist in the same web application. Now serves as the foundation for plugin development in OpenMRS (widely used open source medical record system).
- Extensive hands-on UI wireframing and prototyping with doctors in a rural hospital in India on a novel tablet interface. Developed unique approaches for structuring clinical data (unsolved problem in industry).

Motech Ananya/Kilkari Team
- Implemented (team of 6) a full stack IVR application to serve audio courses to health workers. Front end VXML + JavaScript, with a Java web service back-end over CouchDB/ActiveMQ and a reporting layer over PostgreSQL. Application stress tested by vendors at 100k calls per day.
- Designed to be Highly Available (99.5% uptime mandated in contract). Setup backup instances of all services - Tomcat/Postgres/ActiveMQ/Postgres and Virtual IP based OS switching. Individually

implemented performance optimizations up to 10x for critical code paths.

Capillary Technologies (startup),   Software Development Engineer,   March 2010 – March 2011

- Third intern, 20th employee and key initial member of Sequoia funded startup - one of the most highly regarded product startups from India.
- Designed and built the client application (C#/.NET application) from scratch, which ran on 3000 stores (during my tenure) and handled up to 3 million customers. Solved unique challenges such as vastly varying infrastructure, poor connectivity, complicated data synchronization, screen scraping.
- Ported a subset of the application to a 15 year old (JRE 1.4/Win NT) platform in 2 weeks to help clinch the biggest deal of the startup (at that time 50% of its revenue)

Akamai Technologies,   Associate Software Engineer,   June 2009 – March 2010

- Only fresh graduate member in a senior development team of 6 that worked on a Ruby on Rails sales order / product management application (Best New Product of the Year in Akamai).
- Implemented several crucial features - Audit Trail framework, Highly Available contract processing daemon with unique measures for resilience, Integration with Akamai platform alerting system.
- Won the SPOT Award for fixing a business critical bug in the production system.

Other Experience

Mckinsey & Company,   Independent Consultant,   January 2012 and July 2012 – August 2012   [Freelance work]

Intern at Microsoft Global Services India, July 2009 – September 2009

Julia Language - Improved regex matching and wrote a Naive Bayes Classifier for the language.

Skills / Technologies
Languages – Java, Ruby, C#, C/C++, MATLAB, JavaScript. Puppet for DevOps. Julia (minimal)

Databases/Messaging Queues – NoSQL - CouchDB, MQ - ActiveMQ, SQL Databases - PostgreSQL, SQL Server, MySQL, Oracle XE. Embedded DB - SQL Server Compact (heavy perf optimization), SQLite3.

Frameworks – Spring, JDK, Android, .NET, Rails, LINQ, WinForms.

Tools - Git, Maven, Vagrant