Gary Paduana

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Latest Version

Summary

- A Software Engineer specializing in data-centric, algorithmic, mobile, and web solutions with professional experience in aerospace, health care, financial, and business roles.
- Proficient in Java, Kotlin, Groovy, SQL, Python, Bash, Javascript, CSS, and HTML.
- Experience with Spring (Boot, Integration, MVC, JPA), Grails, Android, Django, Jenkins, Amazon Web Services, PostgreSQL, MySQL, SQL Server, Oracle, Web Services, RabbitMQ, Bootstrap, Docker, Git, GPG, and ZFS, among others.

Education

2007 Robert Morris University, Moon, PA
- **Master of Science**, Information Security and Assurance, *3.96*
- **Bachelor of Science**, Software Engineering, *3.81, Magna Cum Laude*

Professional Experience

Jan 2021
Jul 2017 **Senior Software Engineer**, *Intuit*, San Diego, CA
Created personal finance applications to help individuals manage their debt, monitor their credit, and save for their future.
- Created *Turbo* for Android, a personal finance app with over 1,000,000 downloads and a 4.8-star rating, on a team with three other engineers. My contributions were in app infrastructure (network calls, encrypted local storage and offline access, service management and dependency injection, Kotlin adoption, and implementing *Android Architecture Components* design patterns for reuse.
- Lead a team in creating the Turbo CCPA (California Consumer Privacy Act) data access and deletion manager that enabled customers to download a record of their Turbo data or delete their account.
- Lead performance testing and tax season readiness efforts for all of Turbo to provide confidence in our services during our periods of highest user traffic. Created a suite of Gatling tests that simulated user behavior on Android, iOS, and Web clients. Taught junior engineers about performance testing with training sessions and tutorial videos. Provided estimates to internal business partners to help with marketing campaign planning and AWS budgeting.
- Wrote a simple DSL in Groovy to generate MVEL expressions used to evaluate business rules against a user's personal financial profile at run-time to determine the best content to display for advice, offers, and reminders.
- Wrote a state machine to evaluate a user's on-boarding registration status and route to the appropriate content within Turbo. Various data sources were accessed in a reactive way to provide scalable IO operations.

Mar 2017 May 2015	**Software Engineer**, *Manifold Technology*, Sunnyvale, CA

Helped architect, develop, deploy, and maintain financial services and information security software in a start-up environment.

- Solely responsible for the design and creation of three Android applications to demonstrate the use of our platform. One focused on account balances and transaction histories with charts and a live view of active trades, another showcased purpose-based access control for sensitive user data, and another served as an API client library to help other developers access our public API.
- Contributed to the core back-end product, which is an asynchronous and highly concurrent collection of Spring Boot Java applications with RESTful APIs and PostgreSQL and Cassandra data stores.
- Managed cloud architecture assets in Amazon Web Services and Microsoft Azure.
- Configured and maintained a continuous integration environment with Jenkins that automatically deployed the latest development and QA builds to AWS EC2 instances.
- Used Selenium to simulate user activity and interaction with various websites to generate a large volume of data that could be used in machine learning analysis.
- Developed web prototypes using Bootstrap, Google Charts, and Pixi 2D graphics to support product demonstrations.
- Conducted technical interviews for Deployment Engineers, Software Engineers, and Data Scientists.

Nov 2014
Jul 2013
Senior Software Engineer, *Healthesystems*, Tampa, FL

Created new enterprise integration software and enhanced existing customer-facing products and processes.

- Lead development on a new Spring Integration application that reconciled offline, historical billing transactions with the existing claims adjudication system.
- Created a process for integrating new vendors into Healthesystems' payment processing system and worked directly with vendor management and development staff. Assisted multiple vendors in troubleshooting and design as they developed a client application to interface with the exposed SOAP Web Services.

Apr 2012
Feb 2011
Senior Software Engineer, Contractor, *General Dynamics*, Santa Clara, CA

Implemented three server-side computational algorithm modules to support a top-secret resource scheduling system.

- Worked on an interdisciplinary team with the help of two mathematicians and one aerospace engineer.
- One module used the k-means clustering algorithm to solve a geospatial minimization problem, another used electrical engineering principles to assure that system load would be within safe limits, and the final algorithm searched for system availability and requested resources to maintain a minimum utilization percentage.
- Created a utility library used to perform geometric, algebraic, and trigonometric calculations. One notable component is the computation of the inverse of an $A_{n,n}$ complex matrix using Lower Upper decomposition and permutation matrices.
- Created an application to bulk load $> 10^{10}$ reference values originating in both text and binary encoding into a relational database using connection pooling and multithreading.

Nov 2010
Sep 2008
Software Engineer, Contractor, *Northrop Grumman*, Redondo Beach, CA

Designed, tested, and integrated custom software to fit the needs of an operational satellite environment (STSS) through pre-launch, launch, and early-orbit test phases.

- Created an application to decode command values from binary receipt files to track changes made to payload memory aboard two satellites as a function of time.
- Analyzed communication anomalies and helped to solve a significant operational problem. Created a binary telemetry stream filter to calculate loss rates by looking for malformed data frames.
- Wrote a stored procedure to serve time series data to satellite operators with look-behind functionality to identify the last known value just prior to entering the time frame requested for each data series.
- Decoded the mission data telemetry stream into subsystem outputs for distribution to specialized analysis teams using an interface control document as reference for bit-level routing.

Feb 2008
May 2006
IT Security Analyst, Intern, *Bayer Corporate and Business Services*, Pittsburgh, PA

Provided IT security services including remote access, account management, and reporting; developed software to automate and refine existing manual processes.

- Automated a monthly data maintenance task that compiled usage metrics and user account health information for more than 16,000 employees and hundreds of technology services globally. This new process and software reduced human involvement time from two days to less than four hours.
- Provided ad hoc reporting to global management with custom SQL queries.

Personal Projects

Nov 2013 **Android Applications**
Sep 2012 Created for fun to explore the Android ecosystem, algorithm design, and full-stack deployment responsibilities.
- *Block Talk* - An asocial network that allows users to create text and picture messages on a map that can be viewed by anyone browsing near that location resulting in a hyper-local bulletin board.
- *Bit Block* - A business directory that aims to connect local businesses and individuals that accept and trade Bitcoin for goods, services, and local currency. It is a fork of *Block Talk* with new features.
- *Word Solver* - A wordsmith assistant that helps solve challenging word games and puzzles. Served over 20,000 solutions to over 3,000 unique users during its active lifetime.

Apr 2013 **Little Rock, Arkansas Crime Reporting Automation**
Feb 2013 A crime reporting tool that ingests raw text input from police reports and uses regular expressions and Google Maps API in Groovy and Java SE to parse all relevant information and prepare a clean and concise summary and map view for distribution to an audience of over 20,000 Little Rock, Arkansas residents.

Since **Project Euler**
Apr 2012 "A series of challenging mathematical/computer programming problems that will require more than just mathematical insights to solve."
- Solved 104 problems to date to practice algorithm design, problem solving, implementation, and optimization using Java SE, Groovy, and Python.
- Focus areas include: sequence analyses, prime factorization, prime generation, very large decimal operations, maximum and minimum distance paths in a graph, calendar and time operations, string analyses (palindromes, reversing, substrings, replacing, searching, pattern detection, permutations, regular expressions, etc.), combinatoric selections, card game simulation and bulk analysis of dealt hands, symbolic simplification of non-trivial fractional expressions, XOR encryption and decryption, Euler's Totient analyses, fraction simplification, ordering within a large collection ($> 10^{11}$ elements), number partitioning, the modeling and statistical analyses of board games, and many other similar subjects.
- Currently ranked in the top 1.5% of members that have been solving problems since 2001.

Since **General File Utility**
Jun 2010 A Groovy desktop application to improve file management productivity.
- *Duplicate File Finder* - Quickly find duplicate files with a lazily-loaded equals evaluation that fails fast without performing unnecessary IO work whenever possible.
- *Bulk Rename* - Rename files with a variety of strategies including Trim, Replace, Date-ify, and Series Editor. Filter affected files with a regular expression and an individual selection capability.
- *Binary Operations* - Analyze binary data in hexadecimal form to compute values for a variety of cryptographic message digests, longitudinal parity of various lengths, alternative representations in other numeric bases, and a variety of character set encodings for textual interpretation.

Awards and Honors

- Robert Morris University Presidential Scholarship (5-year academic, full tuition)
- Guaranteed Reserve Forces Duty Scholarship (2-year ROTC, full tuition)
- Dean's List 9 of 10 semesters
- Alpha Chi membership, limited to the top 10% of an institution's juniors, seniors, and graduate students.

Military

Aug 2011 **Pennsylvania Army National Guard**
Dec 2007 2nd Brigade Headquarters, 28th Infantry Division, Washington, PA
- Worked as the Brigade Assistant S2 as a 1st Lieutenant, Military Intelligence.
- Military Intelligence Basic Officer Leadership Course II (Ft. Sill, OK, March 2008 - April 2008)
- Military Intelligence Basic Officer Leadership Course III (Ft. Huachuca, AZ, April 2008 - August 2008)

Dec 2007 Jan 2006	**Reserve Officers' Training Corps, Pennsylvania Army National Guard** University of Pittsburgh ROTC and simultaneous membership in the Pennsylvania Army National Guard.

- Cadet commander of the Robert Morris University company for 4 semesters leading up to 20 cadet students in daily training operations.
- Ranked 4th of 28 cadets commissioning from the University of Pittsburgh Battalion in 2007.
- Distinguished Military Graduate (top 20% of commissioned officers each year)
- Leadership Development and Assessment Course (Ft. Lewis, WA, June 2007 -July 2007)

Jan 2006 Aug 2003	**US Army Reserves** 660th Transportation Company, Cadiz, OH

- Basic Combat Training (Ft. Benning, GA, May 2004 - July 2004)
- Advanced Individual Training (Ft. Bliss, TX, July 2004 - Sept 2004)