Aaron **Yangello**

SENIOR SOFTWARE ENGINEER

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Experience

Senior Software Engineer II

Mt. Laurel, New Jersey

Innovative Defense Technologies

May 2016 - Present

- Lead team of 5 to develop automated analysis software for U.S. Navy's Ship Self Defense System (SSDS), including system thread and functional use case modeling, test event reconstruction, combat system requirements evaluation, and results reporting. *C++, Java, HTML/CSS, JavaScript, PostgreSQL, SysML, BIRT Reporting, Bash, GIT, Docker*
- Independently developed an SSDS data decoder, which decodes raw binary test data (including system status and messages - typically hundreds of GB at a time) from the SUT and stores it in a database. *C++, PostgreSQL*
- Implemented unit test system for event reconstruction, data extraction, and requirement analysis components of SSDS automated analysis software, which includes CSV substitution of database for unit tests, resulting in a 12x speed up in test time and introducing the ability to retest previously written code. *C++, Catch Test Framework*
- Developed code generation templates which increased development workflow efficiency by roughly 400%. *Apache FreeMarker*
- Fully virtualized Ship Self Defense System software, network, and sim/stim tools to decouple tactical system from lab hardware, enabling the combat system software to be tested and developed exponentially easier and faster than traditional, bare-metal methods. Message latency variations between traditional system and virtualized system were found to be within 0.1% *Virtual machines, Nexus, vSphere, bash/csh, TCL/TK*
- Designed and developed an analysis comparison tool, an application used to compare test results, error reporting, runtime metrics, and analysis comments, extracted from IDT's automated analysis software's database resulting in a 8-15x speedup (depending on complexity) in analysis comparison time. *Java, PostgreSQL*
- Designed and developed a software release documentation generation application, which takes updated release notes and metrics, and generates PDFs required for new software releases, including metrics comparisons to previous releases, which lead to a 6x speedup over manual report creation and an average of 35% fewer typos in the final report. *Java, LaTeX*
- Served as the software release lead for the Aegis Anti-Air Warfare team, whose duties include team task management, test and verification of program functionality, and creation and secure delivery of the software release with 100% on-time and under-budget record over two years and 11 releases. *JIRA, Advanced Installer*
- Currently serve as a People Leader, advocating for a younger engineer and assisting in defining and pursuing his career objectives.
- Security Clearance Level: Secret

Freelance Software Engineer

Contracted on Per Project Basis

2018-Present

- **Liquid Trucking:** Fleet Management System Integration Adapter, integrating a Trimble truck fleet maintenance management tool with BlackBerry Radar's asset location tracking, to automate report processing and sync asset maintenance schedules across platforms, yielding enhanced maintainability and estimated yearly savings of approximately $1.43 million for the company through reduced manual effort and improved data-driven fleet management. *Python, Rest API, JWT*
- **Ciocca Automotive:** Web application for customers to lookup their wait list position for the Chevy Corvette Z06, integrating with a Google Spreadsheet-based wait list managed by Ciocca management through a custom adapter enabling email-address-based queries. CioccaOrderTracker.com *HTML/CSS, JavaScript, JQuery*
- **PlanetBravo K-12 Technology Education:** Technology Teacher's Lesson Planner Google Sheets plugin, featuring automated workbooks for teachers (with school-year and weekly dashboards) and administrators (with multi-school oversight), facilitating seamless communication between them, and resulting in a significant reduction in weekly review time for administrators from 6 hours to 1.5 hours. *JavaScript, Google Sheets*

Test Engineer and Data Analyst

Mt. Laurel, New Jersey

Lockheed Martin/Innovative Defense Technologies

Nov 2019 - March 2020

- Simulate role of a ship's console operator when performing test procedures for US Navy's Aegis Combat System during 4-12 hour testing periods.
- Wrote python scripts to aid in manual analysis of system data to evaluate combat system requirements, improving analysis efficiency of the team by roughly 400%.
- Document findings, report issues found to tactical software developers, review software, and recommend fixes.
- Write system level requirements which reflect desired behavior of the system with an emphasis on testability.

Education

M.S. Computer Science

Georgia Institute of Technology | 2024 | GPA: 3.54/4.0

Specialization: Computing Systems

B.S. Electrical and Computer Engineering

Rowan University | 2018 | GPA: 3.59/4.0

Minor: Computer Science | Concentration: Systems Engineering

Projects

Drone Grocery Delivery Service Simulator

A simulation prototype for a drone-based grocery delivery service, enabling users to create stores, manage inventory, and schedule deliveries. The system includes a client-server architecture with a command line interface for user interactions and a backend server handling business logic and data management. Implemented RESTful APIs to facilitate communication between the client and server, ensuring efficient data exchange. Utilized Docker for containerization, streamlining deployment and testing processes.

Java, SQL, Docker | See on GitHub | Watch Demo Video

Digital Real Estate Assistant (DREA)

A data visualization tool which allows a user to enter personal data and outputs recommendations of real estate listings which would be suitable to the user. The recommendation dashboard includes approachable and intuitive representations of data relevant to the list and location, including resident demographic, income, crime, industry, and resident satisfaction data. Most of this data was collected from government and public real estate associations sources. The resident satisfaction data was derived by scraping NextDoor.com for resident posts and the comments and reactions to those posts. This data was processed by a custom semantic analyzer to achieve a resident satisfaction score for each neighborhood.

Python, Tableau | See on GitHub | Watch Demo Video

Job Offer Comparison App

Developed an Android application that helps users compare multiple job offers against their current employment to make informed career decisions. The app allows users to input and manage job details, including salary, benefits, and leave, while adjusting figures for cost-of-living differences between locations. It features a customizable comparison system where users assign weights to job factors, enabling personalized rankings and side-by-side evaluations. Data is securely stored using SQLite, ensuring persistence across sessions.

Java, SQL | See on GitHub

Household Appliance Survey

A web application enabling users to submit and manage information about their household appliances. The platform allows users to input appliance details, which are stored in a database, facilitating data collection and analysis. Features various reports, providing valuable insights into appliance trends.

PHP, SQL | See on GitHub

Embedded Battleship

An embedded system implementation of the classic game Battleship, designed for play on a microprocessor. The game features real-time gameplay, physical button controls, and audio feedback for hits and misses.

C/C++ | See on GitHub

Coffee Database Query Tool

Developed a comprehensive graphical user interface (GUI) application for managing a coffee database, offering an intuitive and user-friendly platform for database operations. The application supports a range of functionalities, including adding new coffee entries, editing existing records, deleting outdated information, and performing detailed queries to retrieve specific data. Built using Java, the application employs JDBC to ensure seamless connectivity to the underlying database, enabling efficient data manipulation and retrieval. The interface is designed to accommodate both novice and advanced users, streamlining tasks such as inventory tracking, data analysis, and record updates. This project highlights expertise in database management, GUI design, and backend integration.

Java, SQL | See on GitHub

Underwater Image Color Corrector

A collection of MATLAB scripts that correct the color of underwater images, designed to restore true-to-life colors and improve visual clarity. Due to light absorption and scattering, underwater images often suffer from color distortion, with colors such as red and orange diminishing as depth increases. This project addresses these challenges by implementing efficient algorithms to enhance color accuracy and restore the natural vibrancy of underwater scenes.

MATLAB | See on GitHub

EEG 'Mind Reading Magician'

An interactive brain-computer interface (BCI) application that processes EEG signals to detect P300 brainwave responses and identify a participant's selected playing card. The design leveraged the oddball paradigm to design a novel iterative signal-processing algorithm for accurate card identification in under five minutes while ensuring compliance with clinical EEG standards and prioritizing participant safety with medical-grade isolation transformers. Conducted experiments under hardware and demographic constraints, optimizing for brief and effective sessions that balanced comfort and data integrity. This project highlighted the potential of BCI through an engaging "mind-reading" demonstration, fostering public interest in neural technologies and their real-world applications.

MATLAB, Python | Watch Demo Video

Technical Skills

Programming/Scripting Languages	C/C++, Java, Python, JavaScript/Typescript, PHP, SQL, MATLAB, LaTeX
Software Development Methodologies and Tools	JIRA, Agile Development, Containerization (Docker, Kubernetes), Git, Jenkins
Operating Systems	Linux, Windows
Data Engineering and Analytics	Data Analysis (Statistics, Data Visualization), Data Warehousing, Big Data Technologies (e.g., Hadoop, NoSQL databases)
Cloud and Networking	Cloud Computing (AWS), Networking Fundamentals
Additional Technical Skills	Embedded Systems, Web Development (HTML/CSS, REST APIs), Database Management (SQL, NoSQL), DevOps and Continuous Integration

Favorite Books

Non-Fiction	Fiction
Outlive: The Science and Art of Longevity *by Peter Attia, MD*	The Stormlight Archive series *by Brandon Sanderson*
A Short History of Nearly Everything *by Bill Bryson*	The Gray Man series *by Mark Greaney*
The 7 Habits of Highly Effective People *by Stephen Covey*	Outlander series *by Diana Gabaldon*