Troy A. Baker

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Summary

Computer science professional of over 5 years. I have a passion for expanding my expertise in software design, architecture, security, and DevOps. I strive to improve the products and the teams on which I work.

Work Experience

***Google**: Software Engineer* *May 2022 – January 2023*

Full stack developer on a team creating custom solutions for operating system release life cycle management. Languages: Java, Kotlin, Typescript. Frameworks: Guice, proprietary server-side web app framework.

- Lead designer and developer on a web based developer tool for flashing operating systems onto proprietary hardware, via the WebUSB protocol. Coordinated with several teams to gather requirements and designed a flexible solution to support a variety of operating systems and devices.
- Lead designer and developer on a web interface for product life cycle information entry. Improved customer experience and development velocity by eliminating the need for manual entry of data by the backend team.
- Updated significant portions of the existing user interface in collaboration with our UX team.

***Sandia National Laboratories**: Computer Scientist R&D* *June 2017 – April 2022*

Full stack developer on a team providing solutions for authentication, authorization, messaging, caching, and more. Languages: Java, Typescript. Frameworks: Spring Boot, Angular.

- Lead designer and developer of a custom OIDC/OAuth2.0 service, that was adopted by numerous in-house applications for user authentication/authorization and interservice authorization.
- Lead designer and developer of a custom RBAC authorization service. Included a web-based UI for role/resource management and various libraries for integration into other applications.
- Involved in deployment and maintenance of the COTS software Consul, Vault, Artemis, and Ignite. Involved in customer support for the numerous applications using these services.

Full stack developer on a team redesigning an inventory tracking web application. Languages: Java, Typescript, PL/SQL. Frameworks: Spring Boot, Angular.

- Redesigned a legacy Oracle database schema to support complete history of inventory. Led the migration effort for existing data.
- Prototyped a new authentication scheme which grew into the independent project mentioned above.
- Developed significant portions of the user interface. Collaborated on a cross-project team, composed of various applications in the shared suite, to design a common UI/UX.
- Frequently interacted with customers and management to present new solutions and refine business practices.

***CSX Transportation**: Software Engineer Intern* *January 2013 – May 2013*
Analyzed GPS data of CSX train locations to estimate customer service times on a rail network, using self-implemented clustering algorithms. Languages: Python, SQL.

Other Projects
(see resume.tabaker.com)

DR-Planner *Doctoral research, Independent*
Designed a GUI and the underlying algorithms to quickly find realizations of rigid, 2D bar-joint graphs. Independently coded and architected. Languages: C++.

- Implemented self-created algorithms, suitable for industry CAD software.
- Lead author on scientific paper, published in CAGD.

EASAL *Doctoral research, ~10 contributors*
Contributed to software that explores the assembly landscape of molecules (and other physical structures.) Languages: C++.

- Led the restructuring and refactorization of this project. Enabled accelerated development by undergraduate students.
- Contributed to the user guide and feature summary, published in TOMS.

Starshot *Hobby project, Independent*
Created a web based application that features persistent WebSocket communication with a server, asynchronous multiplayer gameplay, logic for a custom deck building card game, and a custom language for implementing new cards in the game. Languages: Kotlin, Typescript, ANTLR. Frameworks: Spring Boot, Angular.

3D Game Engine *Hobby project, Independent*
Created a custom game engine that features a custom architecture with multi-threading, Lua integration, and a deep understanding of the OpenGL 4 pipeline. Languages: C++, GLSL, Lua.

Education

M.S. in Computer Science *May 2017*
University of Florida, GPA: 3.96
Presented at conferences and authored a paper in the field of combinatorial geometry. Taught undergraduate classes. Publications can be found on resume.tabaker.com.

B.S. in Nuclear Engineering *May 2013*
University of Florida, GPA: 3.99
Minors: Computer Science, Astronomy, Pre-med track

Skills

Web design, software architecture, authentication, authorization, containerized deployment.
Languages (Strong): Java, Kotlin, Typescript, PL/SQL.
Languages (Moderate): C/C++, Python.