DANE WILLIAMS

dwilli36@nd.edu | danewilliams.me | 425 988 4749
linkedin.com/in/danerwilliams | github.com/danerwilliams

Education

University of Notre Dame Notre Dame, IN

***B.S. Computer Science**, College of Engineering* *Aug. 2018 - May 2022*

- Cumulative GPA: 3.73/4.0, Major GPA: 3.82/4.0
- Relevant Coursework: Data Structures, Algorithms, Databases, Compilers, Systems, Discrete Math, Logic Design, Computer Architecture
- Notre Dame Water Polo: Captain, Great Lakes Conference champion

Experience

Qualtrics Seattle, WA

Software Engineer Intern *May 2021 - Aug 2021*

- Building a software feature that integrates Qualtrics's Frontline Feedback product with external sources of operational data such as Salesforce
- Writing production code across the full stack in TypeScript that utilizes Node, MongoDB, React, and Redux

Notre Dame Visualization Lab Notre Dame, IN

Data Visualization Researcher *Aug 2020 - Present*

- Co-authored "A Study of Hierarchical Sankey Diagram: Design and Evaluation" submitted for publication in IEEE Vis 2021 academic conference
- Designed and built interactive sankey diagrams in JavaScript using D3.js library to visualize student's academic performance data
- Promoted equity and inclusion efforts by uncovering performance gaps related to disparities in student backgrounds demonstrated by diagrams

AT&T San Ramon, CA

Technology Development Program Intern *Jun 2020 - Aug 2020*

- Contributed to AT&T Labs research in detecting 5G network anomalies:
  - Developed a Python application for centralizing virtual network function data with an Apache Pulsar message bus (similar to Kafka)
  - Processed data with Python and Apache Flink data stream computation engine (similar to Hadoop and Spark)
- Acted as scrum master and full stack developer among a team of interns which built a MERN stack (Mongo, Express, React, Node) application for improving student engagement in online classroom environments as part of a summer long innovation challenge competition

Symetra Bellevue, WA

Cloud Intern *May 2019 - Aug 2019*

- Gathered and visualized over 20,000 network infrastructure related data points by writing various Python scripts which drove strategy leading to over $50k in monthly circuit savings
- Automated invoice processing with Python, Boto3 SDK, AWS Machine Learning: Textract (Optical Character Recognition) and Comprehend (Natural Language Processing), as well as other AWS services: SQS, SNS, and S3

Projects

- **Tmux Dracula Theme:** Open source maintainer and contributor for the official Dracula Theme, github.com/dracula/tmux
  - Wrote the original codebase for a tmux (terminal multiplexor) plugin which was accepted to the official Dracula Theme.
  - Use API's and Unix pipelines with shell scripts to gather various pieces of system information and display in the tmux status bar.
  - Commit code, merge pull requests, perform code reviews, and manage issues (bugs, feature requests, todos) for the project.
  - Project has over 100 github stars, averages hundreds of clones per week, and has attracted several contributors from around the world.
- **Playruski.com:** Social web app for Ruski, a popular sport at the University of Notre Dame, github.com/coderQuad/ruski
  - Built a full stack web app supporting hundreds of users using the MEAN stack as part of a team of four Notre Dame CS students
  - Developed a spec compliant GraphQL API with node.js, express, and MongoDB
  - Deployed frontend to playruski.com with Netlify and backend API to an AWS EC2 virtual machine secured over HTTPS with Let's Encrypt
  - Configured AWS S3 Buckets and Cloudfront CDN for storing user profile picture uploads and serving static content
  - Contributed to various features of the frontend written in TypeScript using the Angular framework
- **Pastebin and URL Shortener:** Site for shortening URL's or uploading small files built in serverless AWS, github.com/danerwilliams/pstb.in
  - Used the Chalice framework for Python to implement AWS Lambda, S3, and API Gateway microservices as a backend.
  - Developed a simple frontend client in HTML, CSS, and JavaScript which is deployed to pstb.in using AWS CloudFront.
  - Implemented a continuous integration pipeline with Github actions to automatically deploy client to AWS when changes are merged.
- **B-Minor Compiler:** A 4 stage compiler for the B-Minor programming language consisting of a scanner, parser, formatter, and typechecker
  - Scans B-Minor source code for legal tokens using regular expressions written in Flex (Lex).
  - Parses tokens for proper syntax using a context free grammar written in Bison (Yacc).
  - Builds an abstract syntax tree in C from the parsed tokens, and then prints the source code using a consistent and readable format.
  - Resolves variables and then checks for legal type assignments in the abstract syntax tree to ensure assembly code can be generated.

Skills

Languages: Python, TypeScript, JavaScript, C, Shell, C++, Java

Technologies: Linux/Unix, Git, AWS, MongoDB, Docker