

DANE WILLIAMS

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Education

University of Notre Dame

B.S. Computer Science, College of Engineering

- Cumulative GPA: 3.73/4.0, Major GPA: 3.86/4.0
- Relevant Coursework: Data Structures, Compilers, Systems, Discrete Math, Logic Design, Computer Architecture, Theory of Computing

Notre Dame, IN
Aug. 2018 - May 2022

Eastside Catholic School

Salutarian

Sammamish, WA
Aug. 2014 - May. 2018

Experience

Notre Dame Visualization Lab

Data Visualization Researcher

- Researcher under Dr. Chaoli Wang working with D3.js javascript data visualization libraries
- Designing and building visual analytical tools of Notre Dame student learning data with the goal of helping close academic performance gaps which result from disparities in student backgrounds

Notre Dame, IN
Aug 2020 - Present

AT&T

Technology Development Program Intern

- 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)
- 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

San Ramon, CA
Jun 2020 - Aug 2020

Symetra

Cloud Intern

- 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

Bellevue, WA
May 2019 - Aug 2019

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 100+ unique clones per week, and has attracted several contributors from around the world.
- **GroupMe Chat Bot:** An AI chat bot written in Python, github.com/danerwilliams/pork-chop
 - Developed a GroupMe chat bot in Python that participates in conversation as well as responds to custom command modules.
 - Runs on a Flask server and can be trained for conversation from a custom csv dataset or other corpus files using the ChatterBot module.
- **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.

Activities & Awards

Notre Dame Men's Water Polo

Nationals Qualifier, Conference Champion, Elected Team Officer

Notre Dame, IN
Aug 2018 - Present

Washington Athletic Club 101 Scholar Athlete

Award Recipient

Seattle, WA
May 2018

Certifications

- **The University of Texas at Austin:** Think Before You Design Think
 - UT Austin coursework offered at AT&T on utilizing design thinking principles to develop customer centered engineering and business solutions

Skills

Languages: Python, C, Shell, C++, Java, Verilog, HTML/CSS, ARM Assembly

Technologies: Linux/Unix, AWS, Git