Michael Simpson

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Education

Clarkson University, Potsdam, NY - Bachelor of Science **Graduated December 2022**

- Major in Computer Science and Information Technology
- Minors in Digital Art and Psychology

New Paltz Central High School, New Paltz, NY **Graduated May 2018**

Technical Skills

Languages and Frameworks: Go, C#, .NET, Angular, TypeScript, SQL, Python, C, Java, HTML, CSS
Software: Git, Azure, AWS, Databricks, Docker, Kubernetes, VS Code, Bash, Vim, Tmux, Slack, Teams
Other: Microservices, Distributed Systems, Agile, Scrum, Windows, MacOS, Linux

Technical Work Experience

Software Engineer II – Comcast: Effectv Advertising, Philadelphia, PA (remote) **2023 – Present**

- Team Lead for development of internal knowledge-based RAG AI Chatbot
- Support and develop distributed systems in targeted ad pipeline ranging from order placement and algorithmic allocation of ads, to billing and post-campaign analytics
- Resolve client reported technical bugs. Develop code fix and monitor pull request from testing to production
- Collaborate with multiple development teams to address issues in distributed data pipelines
- Responsible for increasing reliability of customer facing applications and maintaining communication with users throughout ticket lifecycle

Project Initiatives:

Automated git pull in Go

- Created script to save development time proportional to the number of git repositories by recursively traversing a list of directories using tree data structure
- For each repository found, dispatch thread to run *git stash*, *git pull*, then *git stash pop* to re-add local changes, reverting and notifying user of merge conflicts to leave an error-free working tree

Data Retrieval Automation in C# and Angular

- Built automation tooling and UI to reduce time spent in data collection phase of bug fixes
- Used hand spun .NET backend and SQL queries to pull relevant data from multiple databases

Software Engineer – Medico Physicians, LLC, Phoenix, AZ (remote) **2022 – 2023**

- Developed and maintained medical website for over 5,000 patients across eight offices
- Implemented website features that maintain patient records, procedures, and doctors' notes, schedule appointments, upload scans, order medications, and export patient data
- Complied with HIPAA standards throughout development

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Academic Projects

Neural Network and Deep Learning Implementations in Python

- Implemented a transformer model for next word prediction trained on public datasets
- Replicated convolutional and u-net neural networks, as well as k-means clustering algorithm
- Used libraries: Tensorflow, Keras, numpy, pandas, and matplotlib

Generative Video Art Reverting Famous Paintings into Nature Scenes in Python

- Created a feedback loop of images generated by Stable Diffusion that were fed back into the model as inputs
- Progressively changed prompt weights, opacity, and various parameters during generation
- Used After Effects to blend outputs together into a video

Spell Checker in Python

- Created statistical model that performed spell correction and word prediction using numerous public datasets with the correct word in top five predictions >80%

Basic Shell in C

- Implemented commands: exit, echo, cd, ls, pwd, jobs, kill, help, and clear
- Added history functionality to save previous commands

Model of a Basic File System in C

- Created virtual disk that included basic commands for adding, viewing, and removing files
- Modeled storage and commands to not corrupt on crash

Threading Deadlock Puzzles in C

- Designed deadlock and solution versions of dining philosophers and baboon crossing puzzles

TCP Client and Server for Real-time Messaging in Python

- Supported user-to-user and user-to-group messaging based on RFC 1459

Instant Messenger and File Sharing Program in Java

- Implemented multi-threading to allow multiple client-server connections
- Included audio and image sharing, chat box, and friends tab

Publications and Clubs

Politicians, Pundits, and Platform Migration: A Comparison of Political Polarization on Parler and Twitter
Co-Author

- Northeast Journal of Complex Systems, Vol. 5
- Reached readers in 29 countries
- Performed data collection and analysis using web scraping, Twitters' API, and graph data structures

High School Varsity Lacrosse Team Captain

Clarkson Open Source Institute (COSI)