Sid Su

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An aspiring DevOps engineer learning to deliver secure, stable, performant and continuously available services with a strong *nix, coding and mathematical background. Passionate about emerging technologies such as VR, AI, Cloud and Quantum Computing

IBM Associate Machine Learning Engineer Jun. 2024–Present

(Reston, VA) **The EchoNet Prod Team:** A Deep Learning AI product which translates audio data into coordinate data. Worked on the EchoNet Production Team to prepare the project for a production deployment and pitch the project to customers

- **Machine Learning/Artificial Intelligence Pipeline** - Created a pipeline to automate going from raw data to data snipping, to a model, to testing using PyTorch, torchaudio, wandb.ai. Collected and trained models using the pipeline
- **Python Backend** - Created a backend using FastAPI and PostgreSQL
- **Web Development** - Created a frontend using Node.js, Next.js and React
- **Native App Development** - Created a native admin panel using Tkinter and CustomTkinter extensions
- **Presentation** - Gave a presentation for internal stakeholders, and a video presentation for the Army

Octo Consulting an IBM Company (Internship) May 2023–Aug. 2023

(Reston, VA) **The EchoNet Project:** A Deep Learning AI product which translates audio data into coordinate data, then sends computer vision equipped drones to survey the predicted location. Worked on Team Edge to turn the models and frontend into an end-to-end usable product

- **Python Backend** using the HTTP web framework Flask, Simple Websocket, Psycopg3, PyAudio and NGINX to serve data and files to the Flutter frontend
- **SQL Relational Database (RDB) Design** using a PostgreSQL database, with Psycopg3 and PostgREST as Object-Relational Mappings (ORMs)
- **Live Stream Pipeline** - Made a pipeline to stream RTSP to HLS with hls.js
- **Containerization** with Docker, Podman and OpenShift (Kubernetes)
- **Operating Systems** - Administered RedHat Enterprise Linux (RHEL), Fedora Linux, Debian Linux using Bash and Powershell scripting
- **K-12 Outreach** - Helped with code demos and shared my coding story

Projects

Statistics Papers (Dec. 2021–May 2024): Wrote several statistical papers to explore different trends over time:

- *Who are the fastest typists? (2024)*: Collected data about college-aged students to compare current trends with what has historically been normal typing speed
- *Movie Trends Over Time: A Short History (2023)*: Analyzed historical trends in movies in the context of technology and made data driven predictions for future trends in filmmaking
- *Factors for Performance (2021)*: Analyzed factors that affect grades of K-12 Students

Tools Used: SAS, Markdown, LaTeX, Libreoffice Writer, Python, NumPy, Scikit-learn, Pandas, SciPy, Beautiful Soup, Matplotlib, R (Programming Language), R-Markdown

Home Lab (Sep. 2017–Oct. 2024): Manage a home server running Debian to automate encoding to the AV1 codec with Rav1e and FFmpeg and store files

Tools Used: Linux, Debian, Gentoo, FreeBSD, Bash, Powershell, rav1e (libaom-av1), libvp9, FFmpeg, Samba, NFS, Jellyfin, Emby, Plex, VLC, Docker, Ansible, Btrfs, ZFS

Cryptography (July 2023–Feb. 2024): Implemented encode and decode cryptographic algorithms, then used frequency analysis to attack and break them

Tools Used: Haskell, Python, Jupyter, Scikit-learn, R (programming language), Matlab

Semantic Logic Papers (Jan. 2021-Jan. 2022): Wrote semantic philosophy papers: *The Theory of Conditionals (2021)*, *Causation in Counterfactuals (2021)*, *The Problem of Pronouns (2022)*

Tools Used: Haskell, Markdown, LaTeX

Education

University of Maryland, College Park (2020-2024)

Bachelor of Sciences Computer Science

Bachelor of Sciences Mathematics-Statistics

Chantilly High School Advanced Diploma (2016-2020)

Certifications

ICAgile Foundation of Dev-Ops (ICP-FDO)

IC-Agile Certified Professional (ICP)

Amazon Web Services (AWS) Cloud Practitioner

Skills

English

Chinese (Conversational)

Numeric Analysis

Real Analysis

Probability Theory

Context-Free Grammar

GitHub Version Control

Organizations

The Mighty Sound of Maryland (MSOM)

TBΣ Honorary Sorority

XR (VR & AR) Club

Terrapin Teachers

Maryland Ski Team

Accessibility and Disability Services (ADS) Notetaker

First Robotics Competition (FRC)

The Mighty Marching Chargers (MMC)

Experimental Chinese School (ECS) TA