

# Nilava Saha

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## Education

### University of Texas at Austin — B.S. Computer Science

2021 – 2025

Developed – Operating Systems, Android Mobile Apps, Web Apps, Cloud Management Tools, Game Engines, SQL Database  
Coursework – Cybersecurity, Architecture, Algorithms, Energy Efficiency, Programming for Performance, Debugging & Verifying

## Work Experience

### UTeach Outreach, College of Natural Sciences — Teacher/Full-Stack Dev

Jun 2023 – Apr 2025

- Developed interactive map utilities and web applications with *HTML, CSS, JavaScript*, and *OpenStreetMap API* for 40+ students per semester. Implementation decreased on-site confusion by 100% compared to previous semesters.
- Maintained the official UTeach Outreach website with new improvements and updated content for enhanced user experience and accessibility.
- Taught 200+ students ranging from 6-12th grade on a variety of STEM topics, such as Electrical Engineering and Python Programming, with a focus on hands-on learning.

## Projects

### PintOS - Lite x86 Operating System

- Expanded a toy operating system with a team of 4 developers by integrating essential OS functions like an *NTFS file system, Virtual Memory and Page Faulting for Memory Management*, as well as *shell commands for user programming*.
- Leveraged *Makefiles* to automate *Kernel Building* and *OS testing*, greatly reducing debugging time for *C* software.

### Discord Bot Mokey - Python Auxiliary Assistant

- Designed a *Python*-powered personal assistant with text-command functionality, leveraging *RESTful APIs* to stream music, answer questions, and manage servers. Servicing 50+ concurrent users.
- Automated server deployment and scaling through *Bash* scripts on *Unix* platforms, saving each user over \$200 worth of server infrastructure per month.
- Streamlined development using *Jira* for team management; *GitHub Actions* and *GitHub* for *Continuous Integration and Development* on a self hosted persistent machine allowing for application 100% uptime.
- Managed a team of 3 developers, designating tasks via *Jira*, and quality checking code to maintain a concise production-ready code base.

### AI Deployment and Development - Re-trained Huggingface AI

- Integrated legacy systems with modern *LLMs* to create a seamless link to enhance user experience while maintaining backward compatibility with existing infrastructure.
- Scaled a modern *LLM* for a customer service scenario with *LoRA* to improve responses for FAQs, complaints, and product inquiries.
- Scripted over 1000+ lines in *LoRA JSON* configuration to specialize AI behavior.

### SQL Movie Database - Cloud System Deployment

- Deployed a containerized *Python SQL Database* application on *AWS* using *Docker* and *Kubernetes* while configuring ports and *REST* endpoints for front-end and database interaction.
- Established a lean *CI/CD* pipeline leveraging *Jenkins*, *Helm*, and *Docker* to deploy local and cloud infrastructure.

## Skills

**Languages** — Python, C, C++, Java, JavaScript, Kotlin, HTML/CSS, Bash, ACL2, Lisp, SQL, YAML

**Frameworks** — React, Flask, Docker, Kubernetes, Jenkins, Git, AWS (EC2, S3), Google Cloud Console, REST APIs, Helm, Pytorch, Tensorflow, GitHub Actions

**Additional** — CI/CD, Secure Coding, Server Management, UI/UX Design, Agile, Scrum, Testing & Reporting, Networking, Automation