

Jonathan J. Yang

jonathan.j.yang@utexas.edu | 1(281)919-7492 | github.com/jzhyang1 | linkedin.com/in/jzhyang

EDUCATION

The University of Texas at Austin, Austin, TX May 2028
Bachelor of Science in Computer Science, Turing Scholar Honors Program GPA: 4.00
Relevant Coursework: Computer Organization and Architecture Honors, Data Structures Honors

SKILLS

Machine Learning: Python, Numpy, Keras, Jupyter Notebook, R
Development: C/C++, Make, Java, Git, Swift, x86-64, arm64, C#, Unity
Web: ES6, Typescript, React, Svelte, CSS, PHP, HTML6, Bootstrap, Amazon Web Service
Other \LaTeX , markdown, Bash, Batch, MongoDB, Word, Excel, Notion, Trello, Asana

EXPERIENCE

Panacea (Startup), Austin, TX | Full Stack Developer Nov 2024 – Present

- Led technical development team of 4 through iterative improvements to code hygiene and detailed specifications.
- Developing a platform with **React Native** that connects outpatients with personalized resources.
- Set up the (**Flask**) **REST API**, **MongoDB** database, and AI-driven recommendation system on **AWS**.
- Published the app initially for 20 local users; scaling app with **web-scraping** pipeline for potential resources.

Cinco Learning, Katy, TX | Computer Science Tutor Nov 2023 – Present

- Preparing students for the USACO bronze level by teaching competition programming logic and C++.
- Tutoring students in high school data structures and algorithms classes, including Java Swing Graphics.

EduBeyond, Vancouver, Canada | Full Stack Developer Mar 2023 – Feb 2024

- Developed an LMS for corporate training and schools using **React**, **Next.js**, **Vercel**, **Railway**, and **NextAuth**.
- Implemented: natural-feeling announcements, messaging, document handling, generative AI integration, and authentication; supported by backend logic and (**nonrelational**) **database** schemas.
- Scaled the platform website (a prototype at the time of joining) to support the first 30 thousand paying customers.

University of Houston, Houston, TX | Research Assistant Dec 2022 – Dec 2023

- Applied statistical and **machine learning** techniques with the Renewable Power Grid Lab to forecast electrical loads on the ERCOT power grid using **Python** and **TensorFlow**.
- Tuned and optimized deep neural network algorithms to the time-series dataset, including experimentation with **SVM**, **FCNN**, **LSTM**, **CNN**, ablation studies, and encodings and activation functions.
- Publication: Jonathan Yang, Mingjian Tuo, Jin Lu, and Xingpeng Li, “Analysis of Weather and Time Features in Machine Learning-aided ERCOT Load Forecasting” 2024 IEEE Texas Power and Energy Conference (TPEC). ieeexplore.ieee.org/document/10472183

PROJECTS

Monomer Programming Language (monomer.dev) Oct 2023 – Present

- Invented an object-oriented programming language’s **syntax design** (documented on the website made with **React**), parser, AST intermediate representation (with diagrams in **Mermaid**), and **interpreter**.
- Weighed various parsing strategies (Recursive Descent, LL, LR, Pratt), optimizations (tail recursion, partial compilation), and type systems (static vs dynamic, strong typing, inheritance, parametric polymorphism).
- Scaling the language through user feedback: language features, **just-in-time compilation**, and documentation.

Physical OS Nov 2024 – Present

- Creating an operating system with a game-like layout similar to physical space to potentially improve prefetching.
- Implemented bootloading, graphics mode, and on-screen movements in **C** and **ARM-64** (run on **QEMU**).
- Challenges included compliance to hardware standards, dynamic memory allocation, and interrupt handling.
- Current work and challenges: file systems, mouse and disk drivers, setting up the user space, and implementing the equivalents in **x86-64**.