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As a forward-thinking software engineer driven by a passion for innovation, I've dedicated over 5 years - perfecting the craft of creating exceptional digital experiences. My proficiency in DevOps and CI/CD systems has empowered me - make significant contributions - open-source projects and cutting-edge web applications. Moreover, in my most recent role as a Software Development Engineer at Amazon Web Services, I played a pivotal role in optimizing operational efficiency by spearheading projects across backend, frontend, and DevOps domains. Noteworthy accomplishments include collaborating with lead engineers - devise sophisticated protocols and frameworks, specializing in frontend feature development with a keen focus on React, and deploying backend services utilizing a suite of AWS technologies such as CloudFormation, CDK, and S3. Although my journey at AWS concluded due - company-wide restructuring, my dedication - my craft remains unwavering, and I am eager - bring my expertise in DevOps, TypeScript, Machine Learning, Wordpress, Node.js, MySQL, and React - a dynamic team where I can drive innovation and foster growth.

Experience

Open Source Educator and Software Engineer
June 2022 - Present

Apprenticeship Web and Self-Studying
Houston, Texas

- During my self-directed learning period after working at AWS, I focused on gaining both academic and practical expertise in full-stack development and modern web technologies.
- I've completed numerous hands-on projects, building over 10 innovative web applications and solutions that showcase my technical proficiency and problem-solving skills. One project even achieved a 95 percent user satisfaction rate, based on feedback from over 100 users.
- I'm actively involved in open source development, collaborating on projects like this one: github.com/ZIPING-LIUCORPORATION/react-adobe-embed/issues.
- I meticulously tracked my coding activity and productivity using tools like WakaTime, logging over 1,200 hours of coding and achieving a 20 percent increase in coding efficiency over six months. You can view my progress here: wakatime.com/aws.
- At this time, I am no longer actively seeking career oppurtunities with more pertinent details to be added soon to my resume.
- Check out my full report, written for one of my most active projects. It showcases a full year of staggering results at ziping.org/portfolio/synthethics.

Software Development Engineer (Full-time)
March 2020 - May 2022

AWS
Seattle, Washington

- As a Software Development Engineer at AWS, I actively engaged in the development of AWS IoT services, encompassing backend, frontend, and DevOps. My contributions resulted in an increase in service reliability.
- I collaborated with lead engineers to enhance operational efficiency by creating sophisticated protocols and comprehensive frameworks for continuous integration and deployments, which significantly reduced deployment times.
- I played a pivotal role in frontend feature development, focusing on React, and worked closely with our UX team to ensure the technical feasibility of UX designs. I led team efforts in better collaborative processes between UX and engineering teams.
- Concordantly, providing leadership and direction for a unified UI development, I empowered our technical writing teams to fully understand our backend and frontend services. I led revisions in accessible UX text, ensuring empathetic and inclusive language, leveraging my academic background in Liberal Arts.
- I designed and architected a robust framework incorporating cutting-edge technologies such as Lambda, API Gateway, ECS, CDK, CloudFormation, and S3. This initiative uplifted our current infrastructure, leading to new backend service initiatives and improved operational excellence.
- Recognized as a leader in Development Operations and CI/CD practices, I spearheaded the implementation of a comprehensive CI/CD system for our team's projects. This involved utilizing the latest testing frameworks and leveraging robust and easily extensible testing libraries that I developed. These libraries were provided within the internal AWS package manager, Brazil, allowing for fast and efficient creation of integration and unit tests.
- To streamline the testing process, I exposed a suite of testing commands that incorporated the best methodologies in UI testing. These commands could be used across a variety of testing frameworks, ensuring consistent and reliable testing of UI components in a real browser environment.
- Drawing from my experience in writing countless tests in Cypress, Jest, and Puppeteer, I incorporated the best practices and addressed the nuances that network requests can introduce to a testing environment. This comprehensive approach to testing ensured the quality and reliability of our projects.
- In tandem, I created and developed real-time analysis graphs that provided automated alerts for monitoring site availability using AWS CloudWatch. This significantly improved our ability to investigate intermittent availability issues in a timely manner and enabled automated remediation capabilities, such as auto-scaling and continuous deployment rollbacks.

Software Engineering Intern
May 2019 - August 2019

Texas Instruments
Sugar Land, Texas

- I spearheaded a team project for TI's annual internship design challenge, creating a local, voice-controlled spice-rack, as well as researched applications of DSPs in machine learning contexts such as speech recognition.
- The voice-controlled spice-rack project can be viewed here: hackster.io/spicerack-team/voice-controlled-spice-rack-235834.

Patent Engineering Intern
May 2017 - August 2017

Holland and Hart LLP
Boulder, Colorado

- I collaborated with a team of patent attorneys - draft and file patents for clients, also drafting responses - office actions from the USPTO.

Electrical Engineering Intern
June 2016 - August 2016

TICOM Geomatics (CACI)
Austin, Texas

- I flourished in a unique environment as a defense contractor for the U.S. government. My work revolved around signal processing and software-defined radio (SDR) projects, driving innovation in the field.

UEFI/BIOS Firmware Engineering Intern
June 2015 - August 2015

Hewlett Packard Enterprise
Houston, Texas

- Led the development of a custom driver integrated into the laptop's firmware, enabling seamless communication between the laptop's EEPROM and the DreamColor display panel, facilitating the transfer of calibration data. This driver allowed for writeable calibration data to be hardcoded at the factory level for precise color spacing at sRGB level.
- This project, my first foray into the professional tech industry, demanded deep understanding of firmware development, low-level hardware interaction, and communication protocols. My understanding of firmware development and low-level hardware interaction deepened rapidly during this project, showcasing a level of technical expertise uncommon for someone still in the early stages of their college career.

- I also created a user-friendly bootable UEFI application for the factory pipeline, streamlining the calibration data writing process to the EEPROM. The application's user-friendly interface and compatibility with USB booting enhanced efficiency and workflow for the manufacturing team, which utilized the same overarching implementation and architecture from the custom driver.
- Achieved significant level improvement in production efficiency through optimized data transfer facilitated by the custom driver and bootable UEFI application that had a direct impact on factory pipeline operations.
- Provided comprehensive documentation and ongoing support to the factory pipeline team, including detailed instructions for driver installation, bootable UEFI application usage, and standardized calibration procedures. This support enabled seamless adoption, utilization, and maintenance of the custom driver and bootable UEFI application, resulting in consistent and accurate calibration across all laptops produced.

Projects

Fine-Tuned Opensource Language Model Chatbot *April 2023 - Present*

- An ongoing iterative research project focused on fine-tuning LLMs utilizing a curated dataset of my own personal and academic writings with the goal to develop a chat AI reflective of my writing style and ideation patterns.
- Leverages open-source frameworks (including Hugging Face's Transformers library) and advanced self-hosted, customized hardware setups, which aims to create an AI assistant that engages in contextually relevant conversations that is locally hosted and cost-effective.
- Utilized PyTorch for implementing and training the language model, harnessing its capabilities for efficient computation and optimization.
- Utilized Nvidia Titan RTX and Tesla P40 GPUs for accelerated training and inference, overcoming the challenges of using legacy Tesla GPUs with modern transformer-based models rather than the previously predominant Recurrent Neural Network (RNN) models. Transformers, a new architecture introduced in a 2017 paper, gained significant traction with the release of OpenAI's GPT-3 in 2020. The latest Tesla and Titan GPUs, released in 2018, predate this surge in transformer use. Transformers are revolutionary because they save considerable memory compared to RNN approaches, with minimal tradeoffs.
- Given my iterative ongoing work in developing LLMs, I have become Highly proficient now in developing AI centered approaches in software application solutions that utilize language models ability in managing problems classicaly referred as non-deterministic or of polynomial time complexity.
- I integrated RESTful APIs for model inferencing, enabling seamless interaction with the chat AI via web applications and other platforms, including utilization of streamed api protocols. Chat with my AI on my portfolio site at linkedinliu.com. Note: chat is only available on desktop web browsers.
- To read a full technical report on this project, visit zi-ping.com/synthethics, a detailed portfolio report of the project now that is has spanned a full year of progress and of staggering results in multiple facets concerning machine learning and theoreotical mathematics.

Implementing CD/CI with Github Actions for my open-source project: a React Component that displays PDFs using Adobe's SDK *August 2022 - Present*

- As a distinguished leader in development operations (see: ziping.org/accolades), I have always been captivated by this challenge and persistently aimed to improve upon existing practices within the dynamic and challenging field of operational excellence and in tandem development operations.
- I successfully developed and currently maintain a functional CI/CD system for one of my most active open-source projects: zi-ping.com/projects/react-adobe-embed. This project uses React and Adobe's Embed API and seamlessly integrates PDFs into web applications as a custom React component, currently serving thousands of users each month.

Pin-Yin Annotator for Chinese (Mandarin) Characters Web Application *June 2023 - Present*

- A complimentary online text editor designed with the capability to append pin yin as annotated text above Chinese characters. This tool was born out of my personal struggle to locate an annotator that was user-friendly and harnessed the power of the most recent web technologies This project utilizes React, Vite, as well as backend Node.js (RESTFUL API)..
- This editor is still in development but is free to use at pinyin.ziping.org.

Customized Wordpress Plugin Utilizing React *May 2023 - Present*

- I began creating custom wordpress plugins, but realized that there was no official support of utilizing front-end frameworks or TypeScript when developing a wordpress plugin, especially relevant when developing wordpress plugins that are intended be a customized block utilized within Wordpress' visual editor, also known as Gutenberg. Hence, I created a solution which integrates usage of React, as well as TypeScript, within a wordpress plugin.
- It is viewable as a github template repository, thus can be easily used as a starting point for a new repository on github for any developer who wishes to utilize the workflow I have created. Checkout the github template at github.com/ZIPING-LIU-CORPORATION/liulock-reactable-synthethics-chatblock.

Notable Skills

TypeScript React Java JQuery JSP Git Node.js Cypress REST HTML Wordpress CD/CI CSS/SASS MySQL

Education

University of Texas at Austin — The University of Texas at Austin Cockrell School of Engineering
Bachelor of Science in Computer and Electrical Engineering — Graduated Fall 2019

University of Texas at Austin — The University of Texas at Austin College of Liberal Arts
Bachelor of Arts in Asian Cultures and Languages — Graduated Spring 2019

Social Links

Portfolio (https://linkedinliu.com) | Github (https://github.com/zipingl) | Wakatime (https://wakatime.com/aws) | Blog (https://ziping.org) | YouTube (https://youtube.com/@zipingl)