JAYLEN LUC

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SUMMARY

Software engineering to me is all about abstractions, creating the right models with appropriate feasibility and creating methods to manifest them. The expressiveness of code determines the effectiveness of communicating instructions for machines to execute. Being a lifelong learner removes limitations of expressiveness and allows me to understand implementation and use code more intelligently
Angular, C++, C, Lisp, Python, Typescript, JavaScript, Unity, React, NextJS, Django, C#, Java, Game Development, Prolog, Ionic, Firebase RealTime Database, AstraDB, Heroku, Supabase

EDUCATION

University of California, Irvine *2020 - 2024*
BS in Software Engineering

EXPERIENCE

Research Assistant, UC Irvine *Jan. 2023 – Oct 2023*
Advised by : Ph.D. Wayne Hayes whayes@uci.edu
Python; NumPy; SQL

- Graphed differential reddening using segmentation on the minor axis to determine the near side of galaxies Github Link
- Designed a Crossmatching algorithm for Pan-starrs subset and all of DR7 SDSS by using Spherical Cosine distance to output the best possible matches for Pan-Starrs objects in the SDSS galaxy catalog Github Link

Computer Science Tutor, UC Irvine *Sept. 2022 – Present*
Communication; Peer Tutoring

- Helped students understand confusing behavior from their own code, explain why it happened, and offer potential fixes

SHOWCASED PROJECTS MY GITHUB

Python Open Source Contribution for MyPy Pull Request Link *Sep 2023*
code review; manage large code base; open source; python; static analysis; static analyzers; linters

- Debugged the source code for an unfamiliar large open source code base
- Opened a pull request to provide a potential fix for the Unpacking Iterable Types issue
- Communicated my findings and conducted code reviews about the code's behavior through collaboration with other contributors

Vertical Search Engine on Birds GitHub Link *Jun 2023 - Present*
Full Stack Development; Search Engines; Python; Search Engine Ranking; Beautiful Soup; JavaScript; React; Django, REST API

- Implemented an efficient targeted web crawler with politeness, simhash to detect duplication, a NoSQL database with key duplication merging and inverse index elimination and pruning, TF-IDF vector model to rank documents, and a full basic web crawler architecture
- Implemented Site Maps caching which improved crawl time by 50 percent. Implemented Index elimination pruning, reduction in disk read and write overhead, binary merge sort on inverted index posting lists, and an index of inverted index term offsets that decreases ranking time by 80 percent
- Put design principles into praxis to design a front end that accepts user queries gracefully and a backend that retrieves websites from my NoSQL database to arbitrate and provides search results for the users

Interactive Educational World Map Atlas with web scraping GitHub Link *Jul 2022 - Aug 2022*
Web Scraping; User Interface Design; Python; RESTful API; Folium

- Programmed an interactive Educational World Map that uses 100 percent web-scraped data written in Python and visualized on a leaflet map
- Utilized several APIs for real time news updates along with a country search bar, map texture customization, and pop up real-time country statistics

Biomes Interactive Map Atlas with NextJS and ArcGIS API GitHub Link *Oct 2023 - Present*
Full Stack Development; NextJS; TypeScript; JavaScript; ReactJS; server side generation

- Designing an interactive serverside generated map that uses the ArcGIS Javascript SDK, spatial analysis and data to help people understand our geography

Bibliometrics Visualizer GitHub Link *Dec 2022 - Jan 2023*
User Experience; User Interface Design; Java Swing; Java; Object Oriented Programming

- Designed a feature satiated User Interface that allows users to visualize bibliometric data in real time by providing their Hirsch index statistics along with 3 other abstract bibliometric determiners

Cellular automata simulator GitHub Link *Apr 2023 - May 2023*
Simple and Fast Multimedia Library (SFML); C++

- Designed a terminal-based cell evolution simulator with multiple rule sets to simulate artificial life to help students visualize the evolution of artificial life

Full Stack Interactive USA Map with web crawling GitHub Link *Nov 2023 - Dec 2023*
Full Stack Development; Python; SQL; JavaScript; React; ReactJS; Django, Web Crawling

- Designed an interactive and responsive Front end Map with popup web-crawled data and news fetched with every mouse hover and click from the user
- Implemented a backend with a polite and courteous web crawler that interacts with the Django SQL database to send and provide USA state data

Game Development Itch.io Link *Nov 2023 - Present*
Unity, C#, pixel art, story creation, narrative and world-building, Unreal Engine 5, C++

- Developed game physics, logic, story, and narrative, and was involved in all major logistical and creative design decisions
- Navigated through group conflicts, and differences in values, listened, and vocalized all concerns so that everyone on my team has bargaining power on the team

Curated AI ChatBot Full stack web Application for MNDYRR Backend Link Frontend Link *Jan 2024 - Present*
Sponsored by: Ph.D Adam Starks CEO @ MNDYRR

Full stack development, LLM, AI Engineering, NextJS, LangChain, Django, AI optimization, JSON Web Token

- Developing an empathic chatbot both backend and frontend for at-promise youth as an additional support system adjacent but not replacing all other social and medical structures
- Fine tuning chatbot by training, prompt engineering and adaptive retrieval augmented generation utilizing the latest research on improving stability, adaptability, and social congruity.

Generalization of Conway's "Game of Life" to a continuous domain GitHub Link *March 2024 - Present*
NextJS

- Implemented a theoretical model to generalize Conways Game of Life to a coninuous domain. Implemented smooth time stepping where each cell as values ranging from [0,1]. All aspects of the Game of life can be altered, the rules can be arbitrarily simple or complex leading to emergent phenomenon beyond our imaginations
- Includes multiple other mathematical visualization algorithms rendered on the canvas
- Built a public API and serverless functionality for user authentication and authorization.