Tobias Kohn

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EDUCATION

Oregon State University   Corvallis, OR
Honors Bachelor of Science in Computer Science, Artificial Intelligence Focus   *Sep. 2023 – Jun. 2027*
- GPA: 3.94 / 4.0
- Relevant Coursework: Linear Algebra, Vector Calculus, Discrete Math, Data Structures, Software Engineering I&II, Databases, Operating Systems, Computer Networks

EXPERIENCE

Incoming Health Informatics Intern   May 2025 – Aug. 2025
Vanderbilt University Medical Center   *Nashville, TN*
- Participant of the Vanderbilt Biomedical Informatics Summer Program

Data Science Research Assistant   Jan. 2025 – Jun. 2025
SHARE Lab, Oregon State University   *Corvallis, OR*
- Processed data from 50 in-home sensors across 100+ homes with **Pandas** and **NumPy**
- **Engineered 5 features** from raw time-series data to analyze inactivity and movement patterns
- Applied machine learning approaches with **scikit-learn** to predict the presence of amyloid plaques in subjects' brains

Undergraduate Teaching Assistant   Sep. 2024 – Jun. 2025
College of Engineering, Oregon State University   *Corvallis, OR*
- Managed and directed 2 labs with 25 students each week
- Instructed 100 students on **Python and C++** programming fundamentals, breaking down complex concepts into simple ideas to enhance comprehension

PROJECTS

Universe Terminal | *Python, Next.js, FastAPI, Render* | universeterminal.com   Apr. 2025
- Led backend development in **Python** of a web application that transforms the universe into an interactive file system, allowing users to explore the cosmos through a command-line interface
- Developed a layered API using **FastAPI** and deployed it with **Uvicorn** and **Render** to enable real-time, multi-client interactions. Also, implemented robust security features like **rate limiting** with SlowApi, **API key validation**, and **automated cleanup** to prevent abuse and ensure memory efficiency and performance
- Engineered a custom **file system architecture** supporting 500+ parallel universes with infinite exploratory paths
- Integrated the **Google Gemini API** to dynamically generate directory and file contents, depending on spacial context and user configuration, to create immersive and ever-evolving universes

Shell | *C, POSIX API, Valgrind*   Feb. 2025
- Developed a **UNIX-like** shell in C supporting I/O redirection, job control, piping, quotes, and var expansion
- Built a tokenizer from scratch, using in-place **string manipulation** and **pointer arithmetic** to extract tokens and dynamically handle var expansion and quoting
- Designed a recursive-descent parser to construct an **Abstract Syntax Tree** (AST) for hierarchical command representation and execution
- Implemented robust syntax validation using a custom-built **Deterministic Finite Automaton** (DFA) to detect invalid syntax before parsing

SKILLS

Languages: English (Fluent), Spanish (Fluent), French (Conversational)
Programming: Python, C, C++, SQL, Web development (HTML, CSS, JS)
Developer Tools: Docker, Git and GitHub, Agile and Scrum (SDLC), SSH, VS Code, Visual Studio
Libraries and Frameworks: Next.js, Flask, FastAPI, Pandas, NumPy, Matplotlib, scikit-learn