Abraham Leininger

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EDUCATION

Indiana University, Bloomington – *Bachelor of Science in Computer Science* **Grad:** May 2024
Major: Computer Science **Minor:** Statistics **Cumulative GPA:** 3.74 / 4.0
Awards: Computer Science Student Scholarship, Hutton Honor College Member, Deans List
Coursework: Data Structures, Algorithms, Machine Learning, Robotics, Computer Vision, Statistical Inference

WORK EXPERIENCE

Genesys – Indianapolis, IN / Remote
Software Engineer, Part-Time Fall 2023

- Continuation of internship contributions

Software Engineer, Intern May 2023 – August 2023

- Member of Cloud Media Team creating interactive webpage applications leveraging Graphviz and PlantUML to create diagrams from production telephony log messages to provide developers with a debugging tool
- Developed descriptive and concise sequence diagrams by utilizing Plantuml and C++ to parse log messages, reducing diagram size by 70% and effectively presenting the information
- Enhanced application design and responsiveness using HTML and CSS, and integrated interactive JavaScript elements to enhance user experience

Vehicle Autonomy and Intelligence Lab at Indiana University – Bloomington, IN
Research Assistant May 2022 – Present

- Actively collaborated with a Ph.D. candidate to develop cutting-edge autonomous planning and mapping algorithms in Python and C++, contributing to ongoing research initiatives
- Gained proficiency in the ROS framework by successfully building custom services, creating launch files, implementing efficient subscribe and publisher workflows, and leveraging RVIZ for advanced visualization
- Successfully presented research at Spring 2023 NSWC Crane Naval Engineering Education Consortium

Luddy School at Indiana University – Bloomington, IN
Undergraduate Instructor for Introduction to Computer Science (CSCI-C211) August 2022 – December 2022

- Taught fundamental computer science topics in Racket to 40 undergraduate students on a weekly basis
- Provided individual tutoring sessions to support students in understanding computer science concepts

PROJECTS

Uneven Terrain Navigation Framework (Python, PyTorch, C++, ROS, Linux) February 2023 – Present

- Implemented state-of-the-art Rapidly Exploring Random Tree (RRT) path planning algorithms in Python, optimizing for navigation efficiency on uneven terrain, and tested with multiple different local maps
- Created a Sparse Gaussian Process Mapping machine learning model in PyTorch using GPyTorch from a sampled LiDAR-based PointCloud

Papyrus Vim Plugin (Vimscript) February 2023

- Built an open-source Vim Plugin that provides asynchronous Pandoc conversation of Markdown notes into PDF documents
- Garnered over 60 stars on GitHub from Vim enthusiasts showcasing its use by other developers

Human Benchmark Clone (TypeScript, React, Next, Chakra UI) January 2023

- Implemented the user interface and brain games from the website humanbenchmark.com using TypeScript
- Integrated Firebase authentication and real-time database, enabling secure storage of user-generated data

TECHNICAL SKILLS

Programming Languages: Python, C / C++, JavaScript, R, Go, Java, Racket
Software: Git, Linux, ROS, Vim, Tmux