Inquiries@LukasArmstrong.io

(502) 220-3163

Lukas Armstrong

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Github: LukasArmstrong

Linkedin: LukasArmstrong

Education

Louisville, KY   **University of Louisville**   **December 2021**

- B.S. in Computer Science And Engineering – In Major GPA: 3.5
- Undergraduate Coursework: Operating Systems; Databases; Algorithms; Programming Languages; Comp. Architecture; Artifical Intelligence; Calculus III.

Employment

Computer Vision Engineer   **Samtec Inc**   **February 2022 – Present**

- Utilizing Halcon/VPM, Python, C#, Microsoft Azure Pipelines, AWS, SQL, Ubuntu, and Behavior-Driven Development (BDD) to develop workflow applications for supporting and maintaining image processing inspections and models for Windows-based PC system.
- Redesigned machine learning workflows and server architecture, achieving **6x** performance optimization while improving model accuracy.
- Provided root cause analysis and corrective actions for reported issues on current production systems locally and abroad.

Software Developer, Intern   **AAPPTEC**   **May 2021 – January 2022**

- Initially hired as an intern during Summer CO-OP, and due to strong performance, the internship was extended throughout the academic year.
- Responsible for the continuous maintenance and enhancement of the legacy user interface for the Peptide Synthesizer.
- Provided guidance and recommendations for optimizing microcontroller operations to enhance relay functionality, thereby improving machine control.

Student Lab Assistant   **McGee Lab – UofL**   **January 2018 – May 2021**

- Utilized MATLAB to process visual data obtained from mouse neurons, transforming raw data into insightful results.
- Employed a diverse array of analytical tools, including Fast Fourier Transform, Rank Sum Test, and Linear Regression, to parse and interpret data effectively.
- Developed a range of stimuli utilizing Processing.JS and PsychToolbox.

Technical Skills

- Languages: Python; Halcon; C++; Java; C#.NET; MATLAB; JavaScript
- Frameworks: Tensorflow, OpenCV, Node.js, Flask, Panadas, Bootstrap, HTML/CSS, JSON, Unity
- Tools: Git, Linux, Docker, AWS(S3 & EC2), Visual Studio; SQL, MongoDB, Postgres

Technical Experience

Projects

- **IDRIS Server** – Unraid/NAS
  - Intention: to further experiment with Docker containers, different database types (SQL, Postgres, Redis), and hosting services for family members.
  - Experience: Created space to learn how to develop and deploy web-accessible services.
  - Goal: Expand services across multiple servers with more dynamic capabilities to increase efficiency.
- **Auto Log Bathroom Scale** – Hacked Bathroom Scale
  - Intention: Remove friction points to make measuring health data easier.
  - Experience: Allowed for experience to practice with ESP32 and communicating with IDRIS server.
  - Goal: Be able to provide long term analysis of health data statistics.
- **VHS Decode** – Hacked VHS Player
  - Intention: Create digital masters of family home VHS tapes.
  - Experience: Allowed for in-depth experience to reverse engineer embedded systems from the 1990's.
  - Goal: Save family members from having to use a costly service to digitalize home VHS tapes.

- **Remote-Controlled Roomba** – Hacked Roomba
  - Intention: Developed a custom control system using Arduino Mega 2560 and Raspberry Pi to extend Roomba's standard functionality.
  - Experience: Engineered custom firmware to enhance device navigation and add novel control mechanisms.
  - Goal: Demonstrate proficiency in embedded systems, firmware development, and robotics integration.
- **Ender 3 3D Printer Advanced Modification**
  - Intention: Engineered comprehensive hardware and software upgrades to optimize 3D printer's Z-axis performance
  - Experience: Customized firmware and slicer software to enhance multi-directional material strength and print capabilities
  - Goal: Implemented advanced modifications to expand printer's functional capabilities beyond standard 2.5D limitations