SHIVAM KHARANGATE

(513) 908-8618 | sinayksp@mail.uc.edu | LinkedIn | GitHub | Portfolio

Education

University of Cincinnati Cincinnati, OH

Bachelor of Science in Computer Science, Minor in Statistics Expected Graduation: May 2027

- Related Coursework: Programming Languages, Discrete Structures, Probability and Statistics I, Linear Algebra

Work Experience

Data Systems Researcher | *IASRL Lab, University of Cincinnati, OH* **September 2024 – Present**

- Synthesized a real-time BLE vibration analysis device calibrated to detect subtle vibrations wirelessly on an autonomously rotating Control Moment Gyroscope (CMG) engine, leveraging a Nano ESP-32 microcontroller and an IMU sensor
- Architected data acquisition pipeline with C++ and MATLAB, using FFT and Kalman Filter for mapping key vibration patterns

Machine Learning Research Co-op | *National Taipei University of Technology, Taiwan* **May 2024 – August 2024**

- Revamped deep learning architectures integrating novel networks by utilizing TensorFlow with Keras for passenger volume forecasting in railway transit, achieving a 15% improvement in model evaluation metric scores
- Implemented a CNN-based image classification system for defect detection in railroad tracks, attaining an 82% test accuracy
- Established a Variational Autoencoder model to effectively denoise sensor readings, enhancing total signal clarity by 19-24%

Embedded Systems Research Assistant | *MEMS & AIM Lab, University of Cincinnati, OH* **May 2023 – February 2024**

- Instantiated a Python-based data acquisition system on a Raspberry Pi with two PMS-11 sensors modified with micropumps, applying serial communication and CRC error-checking to monitor and log particle counts
- Developed a web server for an ESP-32 board using C++, MicroPython, HTML, and JavaScript for a high-voltage DC circuit
- Formulated SOPs and automated machinery for modifying PCBs, resulting in a 60% improvement in production efficiency

Skills

Programming Languages – Python, C++, C#, Java, R, SQL, Julia, Scala, JavaScript, Haskell, Swift, VBA, LabVIEW, MATLAB

Libraries & Frameworks – TensorFlow, Keras, PyTorch, HuggingFace, Scikit-learn, Pandas, Matplotlib, React, Angular, Node.js

Projects

FinVest, Future of Data Hackathon (2024) | *C#, .NET, Chart.js, Plotly, ML.NET, Unity, SQL, IndexedDB* **September 2024**

- Spearheaded "FinVest", a financial and stock dashboard enabling users to visualize connected bank transactions and real-time stock prices, with features for paper trading, sentiment analysis, and predictive insights based on historical data
- Honored with the "Finance Best Software" award, blending VR financial comparisons with budgeting and investing analysis

Picarchu, PBL Taipei Tech Workshop (2024) | *Arduino, C++, Python, PixyMon, SolidWorks* **August 2024**

- Constructed "Picarchu," an autonomous robot vehicle capable of sorting and picking up different color cubes integrated with obstacle avoidance operating PID control, crafted with sensors, servos and 3D-printed grabbing and lifting mechanisms
- Fine-tuned camera precision and programmed through ATmega2560 controller, leading the team into successful performance

HealthSphere, RevolutionUC Hackathon (2024) | *JavaScript, Pandas, Scikit-Learn, PostgreSQL* **February 2024**

- Innovated "HealthSphere," a health and wellness platform designed to improve the clinical trial process by integrating data-driven insights through ML and visualizations, providing personalized insights for empowering health management
- Conferred the "Best Digital Solution to Improve the Clinical Trial Process" and "Best Use of Taipy" category accolades

FaunaFinder, MakeUC Hackathon (2023) | *Python, HTML, JavaScript, Flask, Cloud Vision API* **November 2023**

- Engineered "FaunaFinder", a web application enabling instant animal recognition through user-uploaded pictures, and also summarizing detailed information through query search on any animal, achieving an accuracy rate of 75-85%
- Awarded the "Best Use of AI in Education" category award, highlighting proficiency in image recognition and analysis

Leadership Experience

ENED Teaching Assistant | *CEAS – Engineering, University of Cincinnati, OH* **January 2024 – Present**

- Facilitated and guided 120+ first-year students (35+ teams) in assignments, peer mentoring, tutoring, and teamwork guidance, fostering algorithmic thinking and proficiency in Python, Excel, LabVIEW, MATLAB, VBA, and Spatial Visualization
- Innovated AI course modules for ENED as part of FYE2.0, integrating concepts of generative AI logic formation with workflows

SRS Leader and MASS Tutor | *Learning Commons, University of Cincinnati, OH* **August 2024 – Present**

- Assisted in educating over 45 students in review sessions in concepts of Calculus I (MATH1061), ensuring smooth comprehension and understanding through engaging lectures, achieving 3 different awards for job professionalism
- Provided additional one-to-one support and guidance to students in Mathematics and Science, tailoring unique study plans

AVAILABLE FOR CO-OP: SPRING/SUMMER 2025