GOPAL POKHAREL
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EDUCATION

Fisk University, Nashville, TN — Expected Graduation: Dec. 2025
Bachelor of Science in Computer Science & Mathematics
Relevant Coursework: Math Modelling using AI/ML, Data structures and Algorithms, Operating Systems, Theory of computation, Object Oriented Programming in Java, Python, AutoCAD, Circuit Analysis, Advanced Physics-2, Differential equations, Calculus-II, Research paper writing and documentation, Communication.

SKILLS

Technical: Sensor Fusion, Python, Linux, Control Theory, AutoCAD, Java, Proteus, Microsoft Office 365, LiDAR, HTML & CSS, GitHub, Bootstrap, Basic Robot Operating System (ROS), VS Code, Test-driven Development, Troubleshooting
Libraries: OpenCV, Numpy, Matplotlib, Pandas, RPLidar, RPi.GPIO, MediaPipe
Microcomputers: Jetson-nano, Raspberry pi, Arduino

EXPERIENCE

Research Development Engineering Intern
Metropolitan Sewer District, City of Cincinnati Government — May – August 2023

- Used microcomputers to develop a device with cheap **lidar** units to scan and collect 2d and 3d data points
- Converted the data points into cloud-point based model with **Cloud compare** for assessments of sewer pipes and manholes
- Used **Sensor Fusion** Algorithms to track the path of device in real-time using **Sense HAT,** motion sensors and ultrasonic ranging sensors
- Worked on a prototype device to get video feed using Go-pro 360 inside sewer pipes

Robotic Arm,
Mechatronics Department, Northern Kentucky University — Jan. 2022 – Nov. 2022

- Contributed to the development of a mind-controlled prosthetic arm project, utilizing Arduino, Raspberry Pi, **Cortex API**, and IoT devices
- Proficient in documenting project progress and maintaining project records, including developing technical reports and user manuals

PROJECTS

NEBP
Payload Team Lead, Fisk University — Aug. 2023– Current

- Led the Payload Team for the Nationwide Eclipse Ballooning Project.
- Utilized camera sensors on microcomputers to successfully stream live video footage of an eclipse from high altitudes.
- Designed and fabricated a 3D printed release mechanism tailored for helium-filled balloons, ensuring a safe and accurate release at 120,000 feet.
- Implemented automation using Python and integrated various sensors, enabling the payload to execute its functions autonomously after release, enhancing data collection efficiency and accuracy.

MotionPi
Individual project — Aug. 2022– November. 2022

- Developed a motion detection system using a **Raspberry Pi** and **PIR sensor** to trigger the Pi Camera module
- Implemented automation using **Python** to capture images if motion was detected for more than 5 seconds
- Created a web server using **Flask** to upload and display captured images in real-time

DigiEra — Nov. 2022 – Dec.2022
Mangol Engineering Consultancy

- Used **ArcGIS** in conversion of paper-based maps of the city into digital format for Birtamode Municipality of Government of Nepal
- Uploaded and updated the maps to cloud server for the Municipality

INVOLVEMENT

Fisk Altitude Achievement and Missile Team | Payload Lead — Aug. 2023 – Current
Fisk AI/ML and Robotics Club | Team Captain — Aug. 2023 – Current
NKU Presidential Ambassador | Member — Aug. 2022 – Aug.2023

AWARDS

Outstanding Scholars and Leaders Award, Fisk University — 2023 - 2025
Ratcliff Award and Edge Scholarship recipient, Northern Kentucky University — Aug. 2022
SOS Hermann Gmeiner Full-ride Scholar, SOS Bhaktapur, Nepal — 2017-2019
Student of the year, Eden Garden School — 2016