GOPAL POKHAREL

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EDUCATION
Fisk University, Nashville, TN   Expected Graduation: May. 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, MATLAB, Circuit Analysis, Advanced Physics-2, Differential equations, Calculus-II, Research paper writing and documentation, Communication.

SKILLS
Technical: Python, Sensor Fusion, Linux, Linear Control Theory, Project management, AutoCAD, Java, Proteus, Circuit Design, Microsoft Office 365, LiDAR, HTML & CSS, GitHub, Bootstrap, Automation, Robot Operating System (ROS), VS Code, Data Analysis, Troubleshooting
Libraries: OpenCV, Numpy, Matplotlib, Pandas, Sci-kit Learn, RPLidar, RPi.GPIO, MediaPipe, Flask, Sense HAT, rclpy
Microcomputers: Jetson-nano, Raspberry pi, Arduino

EXPERIENCE
Research Development Engineering Intern
Metropolitan Sewer District, City of Cincinnati Government   May – August 2023
- Developed innovative and cost-efficient solution using **microcomputers** and affordable **lidar** units to scan and collect 2D and 3D data points
- Engineered point cloud-based models with **Cloud Compare** for sewer pipe and manhole assessments, improving infrastructure maintenance
- Applied **Sensor Fusion** Algorithms to track device movements using Sense HAT and motion sensors in real-time, enhancing data accuracy
- Spearheaded a prototype for capturing video feed within sewer pipes using a GoPro 360 camera
- Assisted Project Manager to analyze documents and contract bid options for 3million dollar sewer development project

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**
- Produced detailed technical reports, project documentation, and user manuals

PROJECTS
NEBP
Payload Team Lead, Fisk University   Aug. 2023– Current
- Led the Payload Team launching high altitude balloon 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

VOLGES   July. 2023 – Current
Individual Project
- Developed a hand tracking module using **OpenCV** and **Mediapipe** which can be used to recognize hand-gestures and give commands
- Utilized the pyclaw tool from an **open-source** platform to enable media volume control on Windows computers through hand gestures
- Work in progress and focused on creating intuitive and accessible hand gestures, making it suitable for individuals with limited mobility, such as those with paralysis
- Working with Jetson nano kit to train on new faces using face-recognition module from OpenCV and gestures from mediapipe

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

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

HOBBIES : Motorcycle riding, Adventure sports, listening to 70's music, travelling, breaking and remodeling gadgets