Samir Bhattarai

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GitHub | Linkedin | Portfolio

Education

University of Southern Mississippi — Hattiesburg, MS
Computer Engineering Bachelor's Degree — Aug 2023 - May 2027
Mathematics Minor

Skills

Programming Languages:	C++, Python, HTML/CSS
Libraries/Frameworks:	OpenCV, Keras, Tensorflow, MatplotLib, Pandas, Django, JavaScript, React, Next.js
Tools / Platforms:	Fusion 360, VS Code, Matlab, Git, GitHub
Databases:	SQL, MongoDB, SQLite

Projects / Open-Source

Vision Bot: Real-time Object Detection & Avoidance | Link *Esp32 Module, Arduino, Python, OpenCV, YOLO*

- Leading development of an autonomous robot using an ESP32 camera and Yolov9 for object detection
- Designed advanced obstacle avoidance algorithms, improving route efficiency by 88% and reducing collisions with 93% accuracy

KritiSana | Link *Python, Django, Tailwind, Pandas, JavaScript, MY SQL, SQLite*

- Developed an ML-powered recommendation engine using Python, enabling personalized product suggestions to enhance user engagement and drive conversions
- Utilized real-time data analysis using Python, Django, and Pandas to identify customer preferences, resulting in increased sales and optimized product recommendations
- Integrated Chart.js and D3.js for a dynamic dashboard, visualizing customer interactions and tracking recommendations for data-driven decision-making

Classification of Zero-Day Exploitation Types | Link *Python, Tensorflow, Pandas, Matplotlib, Numpy*

- Used a CNN classifier to classify the Zero-Day exploitations on various companies since 2014 based on the exploitation type
- Used extensive feature engineering, encoded categorical variables, and scaled features to optimize the performance and achieve an accuracy of up to 88%

ESP32 TTS Audio Streaming and Download Server | Link *C++, Ncurses Library*

- Developed an ESP32-based system for real-time Bluetooth audio streaming and a local web server for MP3 file downloads using OpenAI's TTS API
- Implemented SPIFFS for file storage and WiFi for network connectivity
- Integrated API communication and embedded web server to handle file streaming and downloads

Computerized Numerical Controlled (CNC) Printer *Arduino Mega, Arduino IDE, Tinker CAD*

- Engineered a CNC printer with a precise pen mechanism for printing 2D text and images across X-Y axis
- Coded an Arduino-based system to process and print digital inputs onto paper using stepper motors

Certifications

- Modern Robotics: Mechanics, Planning, and Control - **Northwestern University / Coursera**
- Integrated CAD/CAM/CAE - **Autodesk / Coursera**
- Data Analysis with Python - **FreeCodeCamp**
- C++ for Programmers - **Codecademy**

Honors & Awards

- Presidents List Scholar: Fall 2023, Spring 2024
- LOCUS 2020, 17th National Technological Festival SDG 7 Category 1st Place
- Kathmandu University, Annual Robotics Festival - 2nd Place