

Samir Bhattarai

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Hattiesburg, MS

[Portfolio](#)

EDUCATION

University of Southern Mississippi
Computer Engineering Bachelor's Degree

Hattiesburg, MS
Aug 2023 - May 2027

SKILLS

Programming Languages: C++, Python(Django, Django REST Framework, Numpy, JavaScript, HTML,CSS)
Libraries/Frameworks: OpenCV, Keras, Tensorflow, Matplotlib, Pandas, React, Next.js
Databases / Platforms: SQL, MongoDB, SQLite, AutoDesk, Matlab, VS Code, Git, GitHub
Other: Analog & Digital Circuit Design, Embedded Systems, Algorithms and Data Structures

SELECTED EXPERIENCE / OPEN-SOURCE

Vision Bot | [Code](#)

Fusion 360, Esp32 Module, Arduino, Python, OpenCV, YOLO

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

KritiSana | [Link](#)

Python, Django, REST, Tailwind, Pandas, JavaScript, MySQL, SQLite

- Developed an ML-powered Full-Stack recommendation website using Python, Django, and REST Framework, 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 | [Results](#)

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 | [Code](#)

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

EXTRACURRICULAR EXPERIENCE

Member – USM ACM-IEEE Robotics Club

- Leading the initial prototype design (using AutoDesk Fusion 360) for robot locomotion, cargo pieces pickup, and sorting mechanisms for the Southeast Con 2025 hardware competition
- Contributed to build robot hardware and around 30% of the code in the robot's locomotion and servo mechanism for the flag display for the Southeast Con 2024 hardware competition

President – CCRC Scientific Circle

- Organized and tested four solar panel setups—stationary (with and without wipers) and sun-tracking (with and without wipers)—demonstrating a 20-25% efficiency increase in sun-tracking systems with wipers.
- Engineered a competitive robot using Arduino ATmega 328 microcontroller with a 433 MHz RF transmitter/receiver module for responsive input and output for optimized navigation in minimum time

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 – University of Southern Mississippi
- Academic Excellence Award, Full Tuition Scholarship – University of Southern Mississippi
- LOCUS 2020, 17th National Technological Festival SDG 7 Category 1st Place – Sun-Tracking Solar Panel project
- Kathmandu University, Annual Robotics Festival - 2nd Place – Battle Bot