Samir Bhattarai

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EDUCATION

University of Southern Mississippi   Hattiesburg, MS
Computer Engineering Bachelor's Degree   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

Research Assistant – University of Southern Mississippi   *Fusion 360, ESP32 Module, Raspberry Pie, YOLO*
- Leading development of an autonomous real-time object detection robot using a Raspberry Pie camera and Yolov9
- Designed advanced obstacle avoidance algorithms, improving route efficiency by 88% and reducing collisions with 93% accuracy

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%

Full-Stack Developer – KritiSana   *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

Embedded Systems Intern – Shree Indrenee Vidya Mandir   *Arduino, C++, ESP32 Module, OpenAI TTS*
- 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

Project Leader – 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 building 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