BISHAL THAPA

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EDUCATION

PhD in Computer Science (May 2023 – Present)
Texas State University - San Marcos, Texas GPA:4.0
Master of Science in Electrical Engineering (August 2021- August 2023)
Texas State University - San Marcos, Texas GPA:4.0

SKILLS

Programming languages: Python, C, C++
Technical: LLMs, Reinforcement Learning and Autonomous Vehicle, Cybersecurity, Django, Data Analysis (Pandas, NumPy, Matplotlib), Internet of Things, TCP/IP, Socket, MQTT, LoRaWAN, LTE, Computer Networking, Machine Learning Analytics, Statistics, Blockchain, Wireshark, Nmap, Cisco Packet Tracer, Lightweight Encryption, Data Mining, Web Scraping, Selenium
Languages: English, Nepali (Native), Hindi

WORK EXPERIENCE

Python Developer Intern (Jan 2019 – Oct 2019)
Niva Business Solutions - Bagbazar, Kathmandu, Nepal

- Ensured the development of web application back-end components, collaborating with multiple clients for providing tailored solutions.
- Proactively identified and rectified error in the integration of back-end components and successfully minimized issues before production.
- Successfully integrated programs per exact specifications, ensuring excellence.

Electronics and Communication Graduate Researcher and Designer (Nov 2019 – Feb 2020)
Datalytics Private Ltd. - Baneshwor, Kathmandu, Nepal

- Performed the modeling and simulation of the electrical and electronics circuit in Proteus Software.
- Designed and assessed the electrical circuit designs, modeling and simulation, resulting in enhanced efficiency.
- Conducted comprehensive data analysis and visualizations, facilitating informed decision-making.

RESEARCH PROJECTS

LLMs for Stress Prediction (in Progress)

- Exploring the application of LLMs on healthcare, including prediction of chronic disease.

Moral Issues with Autonomous Vehicles (in Progress)

- Currently exploring and analyzing the ethical implications for autonomous vehicles, particularly addressing the concern of decision making during moral dilemma.

Analysis of Web Browsers

- Analyzed the top web browsers and their configuration settings to enhance user privacy and security. Successfully identified and mitigated potential data leakage vulnerabilities through analysis of web cookies.

Private LTE Configuration

- Configured private LTE on Anterix network, orchestrated the implementation of an IoT network within University's facility & actively contributed to running applications running on standard LTE, and NB-IoT technology.

LoRaWAN Technology

- Collaborated with Everynet Company to enable LoRaWAN network setup in San Marcos and successfully tested the network by provisioning LoRaWAN devices and ensured the robust functionality of the network.

Machine Learning for Power Output Prediction of a Solar Power Plant

- Successfully implemented multiple supervised machine learning models on the Kaggle solar power dataset to forecast the power output of a solar power plan with accuracy and efficiency.

Blockchain in IoT

- Engineered a distributed architecture from the ground up, incorporating the Gossip protocol, and deployed it seamlessly using TCP sockets.
- Compared the effectiveness of Blockchain in IoT with emerging data solution technology Intelligent Cipher Transfer Object, providing valuable insights into their respective capabilities.

TEACHING EXPERIENCE

Doctoral Instructional Assistant, Texas State University, San Marcos

- Foundations of Computer Science – Lab (Fall 2023, and Spring 2024)

Graduate Instructional Assistant, Texas State University, San Marcos

- Numerical and Scientific Data Analysis-Python || Senior Design I and II

PUBLICATIONS

- "Comparative Performance of TCP and MQTT", International Conference on Digital Telecommunications (ICDT), 2023
- "Intelligent Cipher Transfer Object for IoT Data Security" International Journal on Advances in Networks and Services, 2023

TRAINING

- Cisco Certified Network Associate (CCNA) Training.
- Advanced Python and Django Training.