

MUKESH POUDEL

Hattiesburg, MS

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SKILLS

Languages : Python, C++, JavaScript, Dart

Frameworks and Libraries : Flask, Flutter, PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, ArcPy

Cloud and Utils : Azure/Google Cloud, Apache, Linux(Debian), Git, Docker, Composer

Others : ArcGIS Pro, Typo3, WordPress, HTML, CSS, Adobe Photoshop, InDesign

EDUCATION

University of Southern Mississippi

Aug 2023 - May 2027

Bachelors of Science in Computer Science — GPA 4.0

- Awarded the Academic Merit Scholarship covering full tuition for all 4 years of college.
- Relevant Coursework: *Data Structures and Algorithms, Machine Learning in CyberSecurity, Calculus with Analytical Geometry I and II, Differential Equations, Computer Systems, Computer Networks, Intro To GIS*

PROJECTS

Sediment Dynamics into Flood Modeling in Koshi River (Ongoing)

Feb 2024 – Present

Addressing gaps in traditional GIS methods and research for flood risk modeling in Koshi River Basin by incorporating sediment flux, to evaluate the impact of excessive siltation on river channel capacity and embankment stability.

- Developing methodology to incorporate sediment flux data into flood risk models using Sentinel-2 imagery and machine learning algorithms.
- Working on applying ensemble methods (Random Forest, XGBoost) and deep learning to model non-linear relationships between hydrological variables and sediment dynamics.

Water Body Segmentation with U-Net | *Python, PyTorch, U-Net*

Designed and implemented a U-Net Convolutional Neural Network model to segment water bodies from satellite imagery.

- Achieved 81.9% segmentation accuracy (Dice score) on test data, demonstrating robust water feature extraction capabilities across diverse geographical settings
- Improved model performance by 45% over 20 epochs of training, with validation Dice coefficient increasing from approximately 0.55 to 0.81

Hub City Transit V2 | *Python, Flask, Google Maps API, Docker, Cloud Run, JavaScript, HTML & CSS, ArcPy*

Redesigning the city's bus tracking platform to enhance usability and add real-time ETA calculations with traffic considerations.

- Utilized ArcGIS Feature Layer REST API, to retrieve and process current bus location data, routes and integrated with Google Maps API to provide real-time ETAs, considering traffic and route progress.
- Dockerized and deployed with Docker on Google Cloud Run, and hosted on a custom subdomain.

BIONET Project | *TYPO3, PHP, HTML, CSS, TypoScript, MariaDB, Azure, Apache, Ubuntu*

Developed and deployed a TYPO3-based website for the Bionet Project – part of the Euro-African Biomonitoring Network for assessing environmental exposure in populations.

- Customized Bootstrap Sitepackage for responsive and intuitive UI and developed custom TYPO3 extensions, sitepackages, and templates to automate publication and categorization for efficient content handling.
- Migrated and deployed the website on Azure VM with Apache, ensuring 99.9% uptime, scalability and performance.

Mero Swasthya | *Flutter & Dart, Firebase*

Developed a prototype for a digital health solution in Nepal to enhance health literacy and accessibility.

- Built a prototype that unified services like doctor consultations, anxiety and depression tests, BMI, IBW calculators, menstrual & hygiene tracker, and promoted health literacy via access to health tips and reliable health information.
- Utilized Firebase & Firestore for real-time data management and implemented authentication.
- Recognized for the innovative idea from 4000+ nationwide nominations and was Top 12 Finalist at National ICT Award 2022 under Rising Star Innovation ICT Award Category.

OTHER EXPERIENCES

IT Officer - Nepal Health Frontiers (NHF)

Aug 2021 - Present

Spearhead technical infrastructure management and designed organization's website at NHF - a healthcare NGO focused on NCDs, Mental Health, and Healthy Lungs campaign in Nepal