Nhoojah Maharjan

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Portfolio | GitHub

EDUCATION

The University of Southern Mississippi — Hattiesburg, MS

Bachelor of Science in Computer Science, Minor in Economics and Data Analytics — *May 2028(Expected)*

GPA: 4.0

EXPERIENCE

Research Assistant — Apr 2025 – Present

University of Southern Mississippi — *Hattiesburg, MS*

- Innovated the integration of Segment Anything Model (SAM) with custom datasets, optimizing prompt-driven segmentation tasks by developing new encoder-decoder pipelines and fine-tuning strategies for promptable generalization.
- Spearheaded large-scale annotation initiatives, leveraging SA-1B-inspired methodologies to automate mask generation and refine dataset scalability while ensuring privacy compliance.
- Designed and conducted extensive zero-shot transfer experiments, evaluating SAM's performance across diverse image distributions, establishing novel benchmarking metrics for mask accuracy and segmentation precision.

Backend Developer — Jan 2023 – Mar 2024

Dabuli — *Seattle, WA*

- Orchestrated the development of high-performance backend systems using Node.js and Express.js, implementing asynchronous microservices architecture to enhance system responsiveness and support horizontal scaling.
- Architected efficient RESTful API frameworks, optimizing database interaction patterns in MongoDB and PostgreSQL, introducing advanced indexing and query optimization strategies to maximize system throughput.
- Led robust debugging and incident resolution initiatives, implementing distributed tracing and automated recovery mechanisms to minimize downtime and bolster service reliability across production environments.

PROJECTS

Learnova — *React Native, Expo, Firebase, Gemini API*

- Architected an AI-driven study ecosystem featuring adaptive quizzes, flashcards, and bespoke learning pathways powered by Gemini's NLP models.
- Engineered a spaced-repetition flashcard engine that dynamically adjusts intervals based on recall metrics, boosting long-term retention.
- Deployed a smart study planner with AI-curated reminders, progress analytics, and peer-collaboration tools for shared note- and quiz-building.

Projexio — *Next.js, Tailwind CSS, Redux, Node.js/Express, PostgreSQL, AWS*

- Developed a cloud-native project management dashboard with real-time task orchestration and granular role-based access via AWS Cognito.
- Implemented a high-throughput backend using Express and Prisma ORM, interfacing with PostgreSQL for transactional integrity and AWS S3/Lambda for serverless file processing.
- Integrated Material UI's Data Grid for live metrics and an embedded chat/comment system to facilitate synchronous team communication.

HiveFind — *React Native, Tailwind CSS, MongoDB, Firebase, Express.js, OpenAI API*

- Built an AI-empowered collaboration hub that decomposes projects into granular tasks with OpenAI-driven time estimates and priority suggestions.
- Developed a skills-matching algorithm to auto-pair users based on expertise vectors stored in MongoDB, enhancing team efficacy.
- Orchestrated real-time chat and milestone tracking, uniting asynchronous communication with dynamic progress visualization.

Honors and Achievements

President's List Scholar – University of Southern Mississippi (2024–Present)
Recognized for maintaining a 4.0 GPA across consecutive semesters, demonstrating sustained academic excellence.

Academic Excellence Award – Full Tuition Scholarship
Awarded in recognition of exceptional scholarly achievement and merit-based performance.

Research Poster Accepted – 89th Annual Mississippi Academy of Sciences (MAS) Meeting, 2025
Authored "Virtual Reality in Mental Health: Healing with Ethical Considerations," a comprehensive analysis of Virtual Reality Exposure Therapy (VRET), evaluating its clinical efficacy, ethical concerns, and regulatory gaps, supported by data collection and analysis.

Technical Skills

Programming Languages: Python, C/C++, C, JavaScript, TypeScript, Java, SQL (PostgreSQL, MongoDB), R

Libraries/Frameworks: React.js, Next.js, Node.js, TensorFlow, PyTorch, Scikit-Learn, Keras, Hugging Face Transformers, Numpy, Pandas, Matplotlib Seaborn, GraphQL, FastAPI

Tools/Platforms: Git, VS Code, Google Colab, Firebase, AWS, Docker

Databases: PostgreSQL, MongoDB, MySQL