# RUPAK RAUT

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## EDUCATION

**The University of Southern Mississippi**
*Major:* Computer Science & Mathematics *Expected Graduation:* May 2026
*GPA:* 4.0

## WORK EXPERIENCE

**Machine Learning Engineer Intern** June 2024 - Present
*OmniSynkAI*

- Led the fine-tuning of a BERT-based LLM model, trained on 100,000+ product entries, achieving 95% accuracy in auto-populating product features and descriptions, enabling automated multi-marketplace listings.
- Applied NLP techniques, including tokenization, TF-IDF vectorization, and named entity recognition (NER), improving feature extraction accuracy by 15%.
- Reduced backend response time by 30% with Redis caching and ensured high availability by deploying services on AWS with Elastic Load Balancing (ELB) and NGINX.

**Software Engineer Intern** Jan 2024 - May 2024
*OmniSynkAI*

- Developed responsive, dynamic UIs with Next.js, Tailwind CSS, and Redux for predictable state management, ensuring cross-browser compatibility and reducing page load times by 25%.
- Automated listings, order fulfillment, and inventory synchronization for e-commerce marketplaces with Fastify/Node.js and RESTful APIs, improving processing speed by 30%.
- Hosted Fastify/Node.js and PostgreSQL backend with Prisma ORM on Microsoft Azure, implementing CI/CD pipelines using GitHub Actions for automated testing and deployment, reducing deployment time by 40%.

**Junior Researcher/Developer** Sep 2023 - Dec 2023
*University of Southern Mississippi*

- Developed a deep learning model to accurately simulate intracellular calcium dynamics in single cells.
- Designed and implemented a full-stack React.js application with a Node.js backend to visualize simulations, incorporating D3.js for dynamic data visualization, RESTful APIs for data retrieval, and Docker for containerization.

## PROJECTS

**CleanLabel**

- Developed a high-performance C/.NET Core backend with RESTful APIs, secured via AWS API Gateway, and automated CI/CD using GitHub Actions, maintaining 99.9% uptime.
- Built a Python-based LLM with Named Entity Recognition (NER), using AWS Comprehend on a dataset of 100k+ banned ingredients, achieving 95% classification accuracy in real-time.
- Provisioned infrastructure on AWS EC2 using Terraform, deploying Dockerized .NET microservices with nginx.

**Drag and Drop Website Builder**

- Developed a dynamic drag-and-drop website builder using GrapeJS, Next.js, and Tailwind CSS, enhancing user experience with customizable JS blocks like navbars.
- Enabled multi-page creation and routing capabilities, allowing users to build complex websites and navigate seamlessly between different sections with an option to publish in public domain.

## Open-Source Contributions

- Clerk – The most comprehensive User Management Platform.

## HONORS & AWARDS

- OmniSynkAI - Top 10% YC Applicant W24; Supported by Microsoft Startup Hub and Google for Startups Cloud.
- VOXO HATCHATHON First Place - Tech for Social Impact, awarded $2500 for CleanLabel.

## SKILLS

- **Skills:** Python, Javascript, C++, React, Node.js, Next.js, AWS, ELB, Azure, Terraform, MySQL, MongoDB, Redis, MySQL, REST, GraphQL, Git, GitHub Actions, CI/CD, GCP, NLP, Docker, Kubernetes, Angular, LLM