

AAYOG KOIRALA

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👤 Summary

Enthusiastic Master's student in Computer Science with a 3-year background in full-stack development, specializing in chatbot technologies and proficient in OpenAI API, Weaviate, and Docker. Adept at quickly mastering new technologies and methodologies, I'm seeking a challenging, preferably remote, full-time role that leverages my skills in Node.js, Python, C++, C#, and Java. My thesis work in computer vision with deep learning underscores my strong foundation in cutting-edge technologies. Eager to apply my passion for innovative solutions and problem-solving expertise to tackle complex challenges starting this summer.

⚙️ Skills

- **Programming Languages:** **Python** (5 years, diverse applications), **Java** (3 years, OOP, desktop & web apps), C++ (3 years, 5+ projects), JavaScript (2 years, web development), SQL (database management), C#, PHP
- **Web Frameworks:** **Django**, **Express.js**, Laravel, Node.js, Spring Boot, Hibernate, React, FastAPI
- **Database Management:** MySQL, PostgreSQL/PostGIS, Redis, MongoDB,
- **Tools & Technologies:** **Docker**, **Kubernetes**, **OpenAI API**, Socket.io, MinIO, Cohere, Langchain, Linux, Apache
- **Cloud Platforms:** **AWS** (EC2, ELB, RDS, S3), Azure (AutoML, Databricks), Google Cloud (Dialogflow)
- **Development Practices:** Agile (ICP)/Scrum, API Optimization, Scalability Analysis, **Database Caching**, Data Analysis

🎓 Education

Miami University, Oxford, Ohio

Master of Science in Computer Science, Expected May 2024

Research: View Synthesis for 360° Panoramic Spherical Images Using Stitched Multiplane Image Corridor

Relevant Courses: **Machine Learning**, Cryptography, **High Performance Computing**, **Advanced Networks**

Bachelor of Science in Computer Science, Dec 2022

Capstone: Led development team in the Agile-driven project Library's Chatbot, utilizing Google Dialogflow and Node.js.

Relevant Courses: Software Engineering, Database, Object-Oriented Programming, Data Structure and Algorithms, **Algorithms**, Web Services, **Quantum Computing**, Compiler Design

📁 Projects

- *DoctorsToday*: Engineered a comprehensive API infrastructure using Node.js, enhanced by MinIO, MongoDB, and MySQL for efficient data management, all containerized using Docker. Realized a significant 60% improvement in data retrieval speed, substantially boosting system responsiveness and user experience.
- *Nepali Weddings Website*: Implemented Kubernetes (KIND) deployment for a PHP, HTML, CSS, JavaScript website for learning purposes, previously deployed using Docker
- *LazyEyeScroller*: Created an innovative Python script that won first place at a MLH-hosted hackathon, University of Indianapolis, 2018. The script leverages eye-tracking technology for intuitive control of social media scrolling, showcasing my proficiency in Python and novel application of machine learning techniques.
- *Movie Ticketing Web Application*: Initiated and successfully deployed a Java Spring Framework-based web application which included comprehensive database management and robust security features.
- *Dynamic CMS*: Formulated a Django REST Framework-based CMS, prioritizing scalability and maintenance ease. Integrated advanced content management features, enabling streamlined content updates and user-friendly navigation.
- *Miscellaneous Self-Projects*: *NewZoidTimes*: Developed a Spacy-based Python backend to grammatically merge headlines and Created GUI Python applications like Tic-Tac-Toe using TKinter and Calculator using JavaFX

👜 Experience

AI Chatbot Developer, Miami University, Oxford, Ohio (Jun 2023 - Present)

- Led the development of a sophisticated **GPT-4 AI chatbot**, significantly enhancing service accessibility and user interaction within the university.
- Conducted extensive **data pattern analysis** using Jupyter Notebook, which led to strategic scalability initiatives, resulting in an **80% reduction in operational costs**.

- Integrated **Weaviate vector database** for efficient data caching, achieving a **40% reduction in server load**, thereby optimizing system performance.
- Crafted and executed a user-centric frontend interface using **React** and **Chakra UI**, aiming for intuitive user experience and seamless navigation.
- Built a robust, scalable backend infrastructure with **Typescript** and **Node Express**, enabling real-time communication via **Socket.io**.
- Utilized **Cohere's classification API** to optimize OpenAI token usage, effectively halving operational expenses.

Software Developer, Miami University - Myaamia Center, Oxford, Ohio (Jan 2023 - Present)

- Devised API integration for the Ethnobotanical Database (EBDB) with the ILDA (Myaamia Dictionary App), amplifying data accessibility and linguistic features.
- Enhanced Eduportal, an educational platform, with advanced analytics and user interaction tracking; upgraded admin UI for detailed engagement analysis.
- Optimized existing **Mailtrap** integration for Eduawards, a scholarship management system, enhancing email communication and application tracking.
- Upgraded user interface and content integration for the National Breath of Life (NBOL) blog, concentrating on dynamic social media feed display.
- Led **migration** and optimization of storage for the ELF Grant Management Application to **AWS S3**, guaranteeing efficient and secure file management.

Teaching Assistant, Miami University, Oxford, Ohio (Aug 2022 - Dec 2022) (Feb 2021 - May 2021)

- Facilitated interactive student lab sessions, focusing on clear communication, effective problem-solving, and teamwork to enhance learning and engagement.
- **Mentored** teams in a semester-long project, employing **Agile methodology** to guide development and ensure project alignment with objectives.
- Acted as a client for student projects, introducing real-world scenarios by requesting mid-project feature changes and evaluating adaptability and response strategies.
- **Assessed student performance** and project outcomes, providing constructive feedback to encourage continuous improvement and skill development.

Healthcare Analytics Intern, Community Health Network, Indianapolis, Indiana (Jun 2021 - Jun 2022)

- Selected as **1 of 150** from over 2200 applicants nationwide for the **TechPoint Xtern** program, demonstrating exceptional initiative and leadership in a highly competitive selection process.
- **Led critical data collection and analysis initiatives**, directly assisting the Chief Analytics Officer in streamlining operational processes and achieving strategic objectives.
- **Managed sensitive healthcare data** and leveraged **Azure ML** for the development of predictive models, enhancing the accuracy and efficacy of healthcare analytics.
- **Developed Azure ML-based models for patient readmission**, performing tailored data engineering for Community Health patients. Achieved model performance on par with the specialized **Epic model**, with an additional **5% efficiency gain** due to customization suited for in-house data.

Java Intern Developer, Nepdroid Innovations, Kathmandu, Nepal (Jan 2018 - Jun 2018)

- Led and mentored a team in the delivery of two production-ready Java projects, fostering a highly collaborative and productive work environment, and accelerating project timelines.

Volunteer Teacher, Shree Bhawani Vidhyapeeth, Parbat, Nepal (Jun 2017 - Sep 2017)

- Volunteered at a rural school teaching English and Mathematics to over 150 students across grades 5 to 10 in a rural community, sharing valuable knowledge and experiences with students and teachers.

★ Awards and Honors

ICAgile Certified Professional (April 2024)

Shodan (Black Belt), Shito-Ryu Karate

Best Script, MLH Hackathon, University of Indianapolis (2018) Dean's List, Miami University (Fall 2020 - Fall 2022)