Aditya Rao

+1 (602)-554-5730 arao87@asu.edu Tempe, AZ in/aditya-rao-dev github.com/adityaraoyt

Skills

- **Programming Languages:** HTML, CSS, C++, Python, Java, JavaScript/TypeScript (ES6+), PHP
- **Frameworks & Libraries:** Angular, React.js, Vue.js, Next.js, Node.js, Flask
- **Database Management:** MySQL, MongoDB/NoSQL, PostgreSQL
- **Project Management Tools:** Git, GitHub, JIRA, Confluence, BitBucket
- **Containerization & Cloud Services:** Docker, AWS Lambda, DynamoDB
- **Machine Learning & AI Techniques:** TensorFlow, PyTorch

Professional Experience

AI Full Stack Developer *Arizona State University* **Tempe, AZ** *08/2024 - Present*

- Engineered and integrated **REST APIs** using **AWS Lambda and DynamoDB**, seamlessly integrated with **React Redux**, achieving a 45% reduction in API response time and enhancing application scalability to handle 30% more concurrent users.
- Worked on **platform-wide UI/UX redesign** focusing on navigation and accessibility, improving accessibility by 35% and increasing user satisfaction ratings by 40%, as measured through usability testing and feedback surveys.
- **Minimized state update overhead** in React, thus reducing component render cycles by 35% and **optimized React lifecycle methods** to achieve 60% faster state updates.

ML Intern *Dave AI* **Remote** *05/2024 - 08/2024*

- Developed and deployed a **containerized text-to-video data pipeline** using **Docker**, integrating text-to-speech and audio synchronization, reducing video generation time by 35% and increasing system throughput by 42%.
- Fine-tuned a pre-trained **deep learning model** to achieve 95% lip-sync accuracy, ensuring precise facial movement synchronization with generated speech audio.
- Incorporated **ESRGAN** in the containerized pipeline to upscale generated videos, enhancing visual quality by 60%, reducing file sizes by 20%, and boosting user satisfaction.

Associate Software Engineer *UST Product Engineering* **Pune, MH** *07/2022 - 06/2023*

- **Designed server-side search, sort, and pagination** functionalities resulting in a 60% increase in data retrieval performance, providing an improved user experience for the cybersecurity portal users.
- Wrote comprehensive **unit tests** for both **front-end** (Angular) and **back-end** (Node.js) components using Jasmine, achieving 80% code coverage across all repositories, enhancing overall application security and reliability.
- **Reduced code duplication** down to 2%, optimizing development processes and enhancing code maintainability for future updates.
- Collaborated with cross-functional teams using **Agile methodologies**, coordinating development efforts via **Jira** and **Bitbucket**.

Projects

Enhanced Question-Answering Accuracy and Credibility through LLMs and Citation Integration *02/2024 - 04/2024*

- Developed and evaluated a **novel question-answering (QA) system** using large language models (LLMs) and Wikipedia-based datasets (ASQA, QAMPARI, ELI5), achieving 98% fluency (MAUVE), 56% correctness on factoid questions, and 27% correctness on open-ended questions.
- Used **inline search and closed book model techniques** to guide LLMs in retrieving, synthesizing, and attributing evidence from top 100 relevant passages, improving citation quality by 100% over the baseline on ASQA and ELI5 datasets.

Comprehensive Image Analysis and Retrieval System *08/2023 - 11/2023*

- Engineered a **cross-functional image analysis and retrieval system** using **deep learning and transfer learning models (VGG16, ResNet)**, improving retrieval accuracy by 35% compared to traditional methods.
- Implemented a **relevance feedback mechanism using Support Vector Machines (SVM)**, enhancing search result precision by 28% and reducing false positives by 40%.
- Optimized system performance by applying **PCA and LSH for feature extraction**, resulting in a 50% reduction in indexing time and a 45% improvement in query response speed.

Education

- **Masters in Computer Science(MCS)** *Arizona State University* **Tempe, AZ** *08/2023 - present*
  Relevant Courses: Foundations of Algorithms, Data Visualization, Frontier Topics in Generative AI
- **Bachelors in Computer Science** *MIT WPU* **Pune, MH** *07/2018 - 06/2022*
  Relevant Courses: Advanced Machine Learning, Data Science, Web Development, Blockchain and Web3

Research Publications

Chatbots: A Futuristic Approach To Therapy *05/2022*
Conference: International Research Journal of Modernization in Engineering Technology and Science

Video Based Human Activity Detection *04/2022*
Conference: Conference: IEEE 2nd CONIT 2022, K. L. E. Institute of Technology, Hubballi