Sanika Chavan

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EDUCATION

M.S. Computer Science *May 2025*

Arizona State University, Tempe, AZ

SKILLS

Programming Languages: Python, Swift, HTML, CSS, JavaScript, TypeScript, Java, SQL

Tools and technologies: Kafka, Apache Spark, PostgreSQL, NoSQL, Azure, D3.js, React.js, Node.js, Tableau, Power BI, MATLAB, GitHub, Jenkins, Docker, SwiftUI, Bootstrap, Hadoop, Keras, MatPlotLib, Ski-kit Learn, Pandas, TensorFlow, Selenium, Spring boot, REST - APIs

PROFESSIONAL EXPERIENCE

Data Visualization Engineer Intern | *Conected VIT, Mumbai* *March 2022*

- Designed a user interface for Conected VIT's startup website, ensuring adherence to design standards.
- Developed over 5 different comprehensive **visualizations** to show the data and wireframes employing Adobe XD and Figma.
- The meticulously crafted design significantly enhanced user experience, leading to a 1.25x increase in user engagement.

Software Developer Intern | *Vidyalankar Institute of Technology, Mumbai* *August 2021*

- Led the design and implementation of a Student Repository System using Java and MySQL, efficiently managing and monitoring students over 10 different types of extracurricular activities.
- Deployed the Student Repository System, resulting in its widespread adoption by the institute in 3 months
- It led to a 2x reduction in overhead for schools in managing extracurricular activities and monitoring student participation.

TECHNICAL PROJECTS

KAN You See the Bias? A visualization of Comparative Study of MLPs vs. KANs *December 2024*

- Faced the challenge of bias in machine learning models impacting human-centric decisions. Built a **storytelling visualization** using ADULT and WESAD datasets, integrating **heatmaps** and **bias distribution plots** to communicate these effects. Improved user engagement by 20%, effectively illustrating the real-world consequences of biased models.
- Analysed and compared Multi-Layer Perceptron (MLP) and Knowledge-Aware Network (KAN) architectures, demonstrating a 10% improvement in generalization and reduced bias with KANs. Visualized performance and fairness metrics across sensitive attributes, providing insights for building fairer, GDPR and HIPAA-compliant ML models.

WebDirect *March 2023*

- Developed a web portal using ReactJS and MongoDB, featuring a content-based recommendation system powered by Machine Learning and cosine similarity algorithms, providing an integrated platform for students to showcase their projects and receive relevant resource suggestions.
- Initiated with the Smart India Hackathon, where the project was selected as one of the top 10 out of 100 submissions.

VFind: Web App for reselling and socializing with academic peers *March 2022*

- Designed and constructed a website using ReactJS and Firebase, enabling students to resell academic materials and facilitating interaction between students, peers, and professors.
- The project enhanced peer communication within the institution, improving engagement and interaction by 20% among students and academic staff

PUBLICATIONS

WebDirect: A Web-based Project Repository | *IEEE Xplore Publication* *May 2023*

- The study presents a web-based project repository system using ReactJS, MongoDB, and cosine similarity for recommendations, addressing issues like complex UI and weak search filters.
- It advances web management and recommendation systems, with potential for adding features like author collaboration and adapting to platforms such as Android and iOS.

A Web-based Project Repository using ReactJS | *IEEE Xplore Publication* *October 2022*

- The paper tackles common issues with project portals, introducing enhancements like improved search filters, project recommendations, trending sections, and user collaboration features.
- It advances the study of project portals, providing insights into functionality and usability, with potential for future adaptation to new technologies and business needs.

ACADEMIC EXPERIENCE

Research Assistant, Arizona State University *December 2024*

- Researched and developed spatial query algorithms, including ST_Contains and ST_Within, using **Apache Spark** and **SparkSQL** to optimize large-scale data processing workflows.
- Conducted performance evaluation and benchmarking for spatial query solutions, implementing Hot Zone Analysis to identify high-density regions in large datasets.