NAKSHATRA TONDEPU

Aspiring Software Engineer | Quantum Computing Enthusiast | Purdue CS Undergrad
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PROFESSIONAL SUMMARY

Sophomore CS major at Purdue University passionate about software development, quantum computing, and AI. Currently contributing to EduVerse's secure coding sandbox and building open-source tools like a Quantum Circuit Visualizer using Qiskit. Experienced in full-stack development, data visualization, and research-driven engineering. Actively exploring opportunities to build educational technologies, solve complex computing problems, and collaborate on impactful software products.

EDUCATION

BACHELOR OF SCIENCE IN COMPUTER SCIENCE **Expected Graduation 05/2028**
PURDUE UNIVERSITY West Lafayette, Indiana
Key Courses: Object-Oriented Programming, Data Science, Programming in C, Critical Thinking & Communication

EXPERIENCE

SOFTWARE ENGINEER **05/2025 – Current**
EDUVERSE

- Engineered and tested a secure sandbox environment to execute user-submitted code and validate outputs against expected results from structured JSON test cases.
- Enhanced code evaluation workflows by integrating automated output matching and error handling, contributing to scalable and reliable academic integrity tools.

PROJECT MANAGER **03/2025 – Current**
PURDUE UNIVERSITY

- Engineered a full-featured Streamlit dashboard for Tree Lafayette using Python and Plotly, enabling real-time analysis of urban tree survival, planting trends, and site-level statistics
- Implemented modular data pipelines and interactive UI components to support CSV/XLSX uploads, dynamic visualizations, and correlation tools for scalable environmental data tracking

UNDERGRADUATE RESEARCHER **08/2024 – 05/2025**
PURDUE UNIVERSITY

- Conducted data analysis using R and Python within Jupyter Notebooks, examining large datasets to extract meaningful insights that supported data-driven decision-making processes.
- Applied advanced statistical methods and data visualization techniques to detect trends and patterns, enhancing the effectiveness of research outcomes and facilitating informed decision-making.
- Delivered actionable findings through comprehensive reports and presentations, improving project workflows and contributing to strategic recommendations across various research initiatives.

QUANTUM COMPUTING INTERN **01/2020 – 06/2023**
QUANTUM COMPUTING UK

- Acquired foundational knowledge in quantum mechanics and linear algebra to comprehend qubit behavior, enhancing the ability to develop and implement quantum algorithms effectively.
- Authored and published insightful articles on quantum computing topics on LinkedIn, demonstrating the ability to communicate complex concepts to a broader audience and contributing to the dissemination of knowledge in the field.
- Developed and executed quantum programs using IBM's Qiskit framework, gaining hands-on experience with quantum supercomputers and showcasing proficiency in quantum programming and problem-solving

PROJECTS

AIInfraLens – ML Inference Observability Platform **06/2025**

- Designed and deployed a production-ready observability tool for ML inference pipelines, tracking end-to-end latency, throughput, and errors across ingestion, preprocessing, model inference, and API response stages.

- Integrated FastAPI, PyTorch, Redis, OpenTelemetry, Prometheus, and Grafana to deliver real-time tracing, performance metrics, and interactive dashboards.
- Built a modern React UI to visualize request traces, latency heatmaps, and system bottlenecks for debugging and optimization.

Qiskit Visualizer **05/2025**

- Built a browser-based quantum simulator using React, Flask, and Qiskit, featuring drag-and-drop circuit design, Bloch sphere animations, and real-time probability visualization.
- Enabled users to compare noisy simulators vs. real hardware and analyze multi-qubit operations in an interactive educational interface.
- Designed for extensibility with planned support for noise modeling, tutorial modes, and circuit optimization.

MedLens **04/2025**

Associated with Purdue University

- Developed a browser-based tool that leverages OCR and language models to extract, summarize, and translate medical data from PDFs into plain English and Spanish.
- Implemented client-side processing for privacy, including PDF parsing, TTS, summarization, symptom checking, and downloadable doctor question generation.
- Enhanced patient accessibility with voice-based summaries, multilingual support, and exportable visit summaries to improve doctor-patient communication.

PUBLICATIONS

Tondepu, N. "How Have Teaching Methods in the English Department in Various LCPS Changed Since ChatGPT Has Emerged?" International Journal of Innovative Science and Research Technology (IJISRT), vol. 4, no. 254, 2024, pp. 2909-2918, doi:10.38124/ijisrt/IJISRT24AUG1110.

Accessed – https://www.ijisrt.com/how-haveteaching-methods-in-the-english-department-in-various-lcps-changed-since-chatgpt-has-emerged-4254

KEY SKILLS

- **Data Analysis & Visualization**: Skilled in extracting insights and creating dashboards with Tableau and Power BI.
- **Programming**: Python, Java, R, C for data analysis, scripting, and development.
- **Statistical Analysis & Data Management**: Proficient in statistical methods, SQL, and data organization.
- **Machine Learning & Deep Learning**: Experience with scikit-learn and TensorFlow for model building and deployment.
- **Quantum Computing**: Knowledge of quantum algorithms and programming using Qiskit and IBM Quantum Lab; Bloch sphere simulation.
- **Frameworks & Tools**: Flask, Streamlit, Plotly, Three.js for interactive web apps and visualizations.
- **Development & Collaboration**: Git, Jupyter notebooks, and REST API integration.