Vamsi Sudersanam

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Education

- **Milwaukee School of Engineering** — Milwaukee, WI
  Bachelor of Science in Computer Science — *Graduation Date: May 2026*

Certifications

- AWS Certified Cloud Practitioner (Aug 2026)
- AWS Certified AI Practitioner (Aug 2026)

Experience

- **Real Time Automation** — Pewaukee, WI
  Software Engineer Intern — *May 2025 - May 2026*
  - Practiced test-driven development within an Agile team, authoring the majority of a regression suite across 7 protocols (MQTT, HTTP/S, SQL, FTP, WebSockets, email, Modbus) and various PLC families; contributed daily via stand-ups, code reviews, and pull requests on Azure DevOps.
  - Queried and manipulated test data using SQL and MongoDB; built Bugspace, an internal full-stack app for storing and visualizing regression results, before migrating the team over to the Allure reporting library.
  - Designed an unattended overnight CI pipeline (crontab + Allure on Azure DevOps) running 300+ regression tests and publishing results to a shared drive, eliminating manual test execution for 30+ engineers.
  - Contributed daily through code reviews, pull requests on Azure DevOps, and Docker-based test environments; gained hands-on exposure to industrial communication standards (Modbus, EtherNet/IP).

- **MSOE IT Help Desk** — Milwaukee, WI
  Student Manager — *Feb 2023 - May 2026*
  - Worked with database systems to track device inventory and repair history across the university fleet; built an internal scheduler application to automate shift assignment and reduce manual scheduling time.
  - Built a Power Automate + SharePoint pipeline to auto-generate vendor repair requests, extracting device metadata from a centralized tracker and eliminating manual email drafting.
  - Managed shift scheduling and daily operations for 20+ student technicians; lead onboarding, training, and device QA across the university fleet, developing strong verbal/written communication and interpersonal skills through daily stakeholder interaction.

- **Medical College of Wisconsin** — Milwaukee, WI
  Research Assistant — *May 2026 – Present*
  - Work alongside physicians and faculty through iterative research cycles, adjusting models and analysis sprint to sprint as clinical questions evolve, and translating technical findings into takeaways that inform patient-care decisions.
  - Pick up new modeling approaches and validation methods as research directions shift, running cross-validation and calibration checks before sharing results, so new tools and techniques get folded in without slowing the team down.
  - Writing SQL queries to extract and pre-process deindentified patient data from relational ICU databases (SICdb, MIMIC-IV, eICU) spanning 15–20 linked tables containing billions of timestamped data points, joining across 50,000+ patient encounters, eliminating temporal data leakage to produce clean, model-ready datasets.

Projects

- **Agile Development of the Wordle Application — Team of 4** — Milwaukee, WI
  Java, Android Studio, GitLab, SCRUM — *Aug 2023 – Dec 2023*
  - Led my team acting as the SCRUM Master and executing the end-to-end development of the Wordle game using SCRUM methodologies; enhanced team collaboration and code quality by implementing version control through GitLab.

- Created and maintained artifacts and issue logs to reduce debugging time, streamline QA efforts, and improve development throughput.
- Implemented the technical adaptation of the game for Android using Android Studio, focusing on intuitive lifecycle management, responsive user input handling, and robust asynchronous operations to deliver a seamless mobile user experience.

- **IT Scheduling Program — Full-Stack Cloud Deployed [GitHub]** Milwaukee, WI
  React, Express.js, MongoDB, AWS *Jan 2025 – May 2025*
  - Engineered an automated scheduling system that uses Genetic Algorithm and Simulated Annealing for scheduling 114 weekly shifts across 20 student workers, satisfying 9+ simultaneous constraints (full coverage, class conflicts, hour limits, fairness) with 100% critical-constraint satisfaction and zero class conflicts.
  - Deployed a full-stack app on AWS EC2 with a React frontend, Express.js REST API, and MongoDB Atlas, featuring real-time schedule generation and submission, automatic validation, and multi-format export.

- **RL Studio — Full-Stack Deep RL Training Platform [GitHub]** Milwaukee, WI
  Next.js, TypeScript, FastAPI, PyTorch, Stable-Baselines3, Gymnasium, SCRUM *May 2025 – March 2026*
  - Built an educational web app that lets users configure and launch Atari agent training across three RL algorithms (DQN, Rainbow, PPO), play the same games live in-browser, and view training analytics (reward trends, averages, high scores) through interactive VisX charts.
  - Designed a FastAPI backend exposing REST endpoints to create, reset, step, and render Gymnasium environments, plus a WebSocket stream for live frame and reward updates during training; built a config-driven training service wrapping Stable-Baselines3 (PyTorch) for DQN/Rainbow/PPO, with user-configurable hyperparameters, eval/checkpoint callbacks, and JSON progress logging.
  - Implemented the Next.js + React + TypeScript + Tailwind frontend with guided hyperparameter tuning, real-time training visualization, and live game playback; added GitHub Actions CI for ESLint, Prettier, and TypeScript validation on every push.

- **GPT from Scratch — Decoder-Only Transformer in PyTorch [GitHub]** Milwaukee, WI
  Python, PyTorch *Sep 2026*
  - Implemented a decoder-only transformer from scratch in PyTorch with token and positional embeddings, multi-head causal self-attention, residual connections with pre-norm LayerNorm, and feed-forward blocks with dropout.
  - Trained the model character-level with AdamW, tracking train/validation loss to diagnose overfitting; iteratively scaled from a bigram baseline to a multi-layer transformer generating coherent text samples.

Skills

Languages: Java 21, Python, SQL, JavaScript/TypeScript, C/C++, HTML/CSS
Frameworks & Libraries: Spring Boot, Spring Framework, Express.js, React, Next.js, Node.js, FastAPI, Flask, PyTorch, Selenium, pytest, Allure
Practices: Test-Driven Development, Agile/SCRUM, REST APIs, CI/CD
Tools & Platforms: AWS, MongoDB, Docker, Databricks, Git, Azure DevOps