Vivek Dhir Rangoju

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EDUCATION

Northeastern University   Boston, MA
Masters of Science, Computer Science; GPA: 4.0: (Algorithms, Machine Learning, Databases)   Sept. 2024 – May 2026

SKILLS

Python (Scikit-Learn, Numpy, Pandas, PyTorch), SQL, C/C++, AWS, x86-Assembly, Git, Github, ML, DL

ACHIEVEMENTS

3-Time International Collegiate Programming Contest (ICPC) Regionalist (2022, 2023, 2024)

Voxel51 Visual AI Hackathon @ Northeastern University Winner Developed a real-time collision avoidance system for airports and wind farms, leveraging **computer vision and AI**. (Python, YoloV8, image-processing)

Dining Menu Bot Adoption: Created a dining menu bot used by over **1500+ users**, showcasing widespread adoption and impactful utility within the student community. (Python, Hikari, Cron-Triggering)

Won Enigma Battleship Hackathon Built a bot that plays the Battleship game optimally in under 49 moves (50% better than random) using a probabilistic heatmap strategy.

EXPERIENCE

Computer Vision Researcher — ACLab, *Northeastern University, Boston, MA*   *Sept 2024 - Present*
- Developing a joint frame-pose embedding model integrating 6D camera pose data and video frames to ensure temporally consistent, spatially accurate driving scene generation for autonomous systems. Working under Dr. Sarah Ostadabbas.

Software Development Intern — Aiden AI, *Hyderabad, Telangana*   *Jan 2024 - Aug 2024*
- Optimized AI Systems and Workflows -   Reduced large language model size by 20% using advanced quantization (GGUF, LLaMA.cpp) while maintaining 90% performance and participating in fine-tuning (PEFT) on custom datasets. Built RAG-based knowledge systems, automated workflows, and improved server deployment efficiency using Python and AWS SDK.
- Enhanced Automation and User Experience -   developed minutes of meeting, cutting documentation time. Designed and developed a usability rating system by analyzing user interactions (Key strokes, mouse actions, emotion detection, Gaze detection, Response times.).

Software Development Intern — Oracle, *Hyderabad, Telangana*   *Jun 2023 – Aug 2023*
- Enhanced bancassurance project with data visualization and processing features, improving customer satisfaction. Designed UI/UX in Figma, developed backend with Spring Boot, and implemented frontend in Angular.
- Made an animation video to explain oracle bancassurance. Additionally, streamlined document templates and improved documentation organization.

RESEARCH PAPERS

"Soybean Genome Clustering Using Quantum-Based Fuzzy C-Means Algorithm" 30th International Conference on Neural Information Processing (ICONIP), China, November 2023.

PROJECTS

OneAiClick.com | *ReactJS, Python, Huggingface, PEFT/LoRA*
- LLM fine-tuning abstraction tool, enabling rapid idea validation and full data privacy.

AI Car Simulation | *Python, PyGame, NEAT, Neural Networks*
- Developed a self-driving car simulation using **Neuroevolution of Augmenting Topologies (NEAT)** to train and evolve 500 neural models.
- Performed a comparison between non-linear networks with linear networks, demonstrating a 3% performance improvement in the training time.

Palace AI: RL agent to play palace cards game | *Python, PyTorch, Reinforcement Learning, Deep Q Learning*
- Developed an AI agent to master the Palace card game using a Deep Q-Network (DQN), encoding game states into a 91-dimensional vector for optimal decision-making.
- Engineered a reward system promoting rule compliance and strategic plays, achieving a 22% improvement over random strategy when trained for 1000 training episodes.