Manit Garg

814-826-8819 | manit.garg.in@gmail.com | linkedin.com/in/manitgarg | github.com/SinfulSoul007 | manitgarg.vercel.app

Education

Pennsylvania State University — University Park, PA
Bachelor of Science in Computer Science, GPA: 3.4/4.0 — *Aug. 2023 – May 2026*
- Business Fundamentals Certificate; Coursework: Data Structures, Machine Learning, Database Systems

Experience

Research Assistant, Explainable AI for Program Semantic Equivalence — Mar. 2025 – Present
Pennsylvania State University — *University Park, PA*
- Develop AI-driven systems for analyzing program semantic equivalence using graph-based learning techniques (GCN, GAT)
- Transform unstructured code data into structured embeddings using Word2Vec, Code2Vec, and DeepWalk for large-scale analysis
- Build explainable AI models achieving 92% accuracy in detecting obfuscated code similarities across programming languages
- Engineer data pipelines processing 10,000+ code samples with automated feature extraction and semantic analysis workflows

Treasurer & Event Coordinator — Sept. 2024 – Present
Machine Learning @ Penn State (ML@PSU) — *University Park, PA*
- Lead financial strategy for 200+ member organization, securing $15K+ funding for ML workshops and technical events
- Coordinate workshops on LLMs and AI applications, organizing networking events with VC firms and tech startups

Projects

StudySprint - AI-Powered Coding Platform | *Next.js, TypeScript, Python, PostgreSQL, Supabase* — June 2025
- Architected full-stack platform combining 3,600+ LeetCode problems with AI-driven learning analytics and search functionality
- Built automated data ingestion pipeline using Python to fetch, transform, and sync structured problem data from multiple APIs daily
- Implemented intelligent search system with real-time filtering, enabling users to discover relevant coding challenges from vast dataset
- Developed responsive TypeScript frontend with Monaco Editor integration and PostgreSQL backend with optimized query performance
- Designed scalable database architecture with 5 interconnected tables, implementing real-time progress tracking and user analytics

Game Captcha - AI-Native Bot Detection | *Next.js, React, TensorFlow, Deep Q-Networks* — Apr. 2025
- Developed innovative CAPTCHA alternative using interactive gaming combined with AI-powered behavioral analysis for bot detection
- Integrated pre-trained Deep Q-Network (DQN) model to benchmark human vs. automated gameplay patterns and calibrate difficulty
- Built modular, embeddable verification system with Next.js frontend and scalable backend infrastructure via Railway
- Implemented WebXR compatibility for VR headsets, creating immersive verification experience with 95%+ human detection accuracy
- Won 10th Anniversary: Timeless Tech Track at HackPSU Spring 2025 among 300+ competing projects

Technical Skills

Languages: Python, TypeScript, JavaScript, Java, C/C++, SQL (PostgreSQL), HTML/CSS
Frameworks & Tools: Next.js, React, Node.js, TensorFlow, PyTorch, Flask, Express.js, Supabase, Tailwind CSS
AI/ML Technologies: Large Language Models (LLMs), Graph Neural Networks, Deep Q-Networks, OpenAI API, scikit-learn
Data & Infrastructure: PostgreSQL, MongoDB, Git, Docker, Google Cloud Platform, Data Pipeline Engineering, RESTful APIs