Derric Varghese

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EDUCATION

Bachelor of Science, Computer Science | University of North Texas | Denton, TX **Expected Graduation: May 2027**
Bachelor of Science, Cybersecurity | University of North Texas | Denton, TX **Expected Graduation: May 2027**

PROFESSIONAL EXPERIENCE

Software Developer Intern   Lewisville TX
Prime Controls   **May 2025 – August 2025**

- Contributed to the Recirculation Wet Well project for Google's server facility, developing control logic that optimized water recirculation efficiency by 15%, reducing system lag and maintenance downtime.
- Engineered automation logic for industrial systems by analyzing system specifications and P&ID drawings to determine control and software requirements.
- Designed and implemented I/O-based control algorithms to manage sensor and actuator signals, ensuring accurate and reliable process control.
- Developed operator-facing interfaces in VTScada that improved equipment visibility and responsiveness for process operators.
- Conducted full-cycle testing and debugging, validating system performance through simulation and live site deployment.
- Documented system logic created operator guides, and supported field integration teams to ensure smooth system commissioning.

Software Developer Intern (AI/Robotics)   Remote
MindHome   **December 2024 -May 2025**

- Utilized ROS2 for autonomous navigation and seamless sensor integration in robotic systems.
- Designed intuitive robotic gestures to enhance user-friendly human-robot interaction.
- Created personalized conversational AI modules leveraging NLP for adaptive and context-aware behaviors.
- Enhanced conversational AI performance with NLP techniques, achieving a 20% improvement in user interaction success rates.
- Collaborated on developing object recognition algorithms to increase accuracy in dynamic and complex environments

Artificial Intelligence Research   Denton TX
University of North Texas   **September 2024 -January 2025**

- Integrate Ethical Principles in AI/ML Models: Conduct in-depth research on embedding fairness, transparency, and accountability into AI and machine learning systems
- Promote Responsible AI Development: Implement strategies to ensure ethical compliance and mitigate biases in AI/ML workflows
- Collaborate Across Disciplines: Partner with interdisciplinary teams to bridge theoretical research and practical application, driving innovation in ethical AI

NOTABLE PROJECTS

CareSense – T-Mobile Customer Happiness Index | HackUTD Project| React • TypeScript • Node.js • Google Gemini AI • TensorFlow.js

- Built real-time AI-powered customer sentiment dashboard using Google Gemini 2.0 for facial emotion detection and natural language feedback analysis
- Implemented multi-face tracking with TensorFlow.js BlazeFace model, processing webcam feeds to detect Happy, Frustrated, Angry, and Neutral emotions
- Designed WebSocket-based live dashboard displaying happiness metrics, emotion distribution charts, and AI-generated actionable insights
- Integrated browser Web Speech API for hands-free voice feedback collection
- Tracks 5 emotion states with 70-92% confidence scores and supports multi-person tracking simultaneously
- Technologies: React, TypeScript, Express.js, WebSockets, Gemini AI Vision API, TensorFlow.js, Tailwind CSS

VerseBot – AI-Powered Biblical Guidance Chat Application | React • Python• JavaScript • Express.js • OpenAI API • REST AP

- Built full-stack conversational chat application providing personalized scripture recommendations based on AI-driven emotional theme analysis
- Integrated OpenAI GPT-5 API for natural language processing to detect 14+ emotional themes (anxiety, depression, loneliness, faith struggles, etc.)
- Engineered intelligent keyword-based fallback system with 200+ contextual response templates when AI quota exceeded, ensuring 100% uptime
- Implemented multi-source Bible verse retrieval integrating wldeh Bible API and bible-api.com with automatic failover handling
- Created theme-matching algorithm selecting relevant scriptures from curated database of 70+ verses across common spiritual topics
- Technologies: React, TypeScript, Express.js, TanStack Query, OpenAI API, REST APIs, Tailwind CSS, shadcn/ui

SKILLS

Programming Languages: Python, Java, C++, HTML, JavaScript, TypeScript
Tools & Frameworks: MySQL, React Flask, Ollama, MongoDB, VTScada, Git, Visual Studio, Node.js, React
Cybersecurity Tools: Wireshark, Nessus, Nagios