Danish Ansari

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Education

Mukesh Patel School of Technology Management & Engineering — Mumbai, India
Bachelor of Technology in Mechatronics Engineering; GPA: 3.50/4.0 — *Aug. 2020 – Aug. 2024*

- Relevant Coursework: Artificial Intelligence & Machine Learning, Data Structures & Algorithms, Industrial Robotics, Graph Theory, Probability & Statistics

Experience

Accelus Robotics — Mumbai, India
Software Engineer - Robotics — *Dec. 2023 – Apr. 2024*

- Architected high-performance C/C++ control software for 3-DOF robotic arm by implementing optimized matrix algorithms and real-time data processing, achieving consistent sub-millisecond execution cycles
- Developed dynamic motion planning system by engineering S-curve trajectory algorithms and state-space optimization, enabling real-time path corrections through efficient data structures
- Designed scalable software architecture using object-oriented principles, implementing modular subsystems for kinematics, dynamics, and control with comprehensive unit testing
- Built real-time data pipeline for system analysis by implementing CSV-based logging and visualization, enabling automated performance monitoring through custom metrics tracking
- Reduced system complexity by refactoring matrix operations and numerical algorithms into reusable C++ classes, improving code maintainability while preserving computational efficiency

Projects

Interactive Code Editor | *React, Monaco Editor, Pyodide* | code.danish.bio — GitHub

- Engineered a web-based code execution environment by integrating Pyodide and Monaco Editor, enabling real-time compilation of Python, JavaScript, and C++ within browser
- Implemented 8+ Python libraries including numpy, matplotlib, and scipy for interactive data visualization and numerical analysis
- Developed custom error handling and real-time IO system to support interactive user input across multiple programming languages

Comment Toxicity Detection | *TensorFlow, Python, Gradio* — GitHub

- Engineered a deep learning model achieving 84.7% precision in multi-label toxicity classification using bidirectional LSTM with 200K vocabulary size
- Enhanced model efficiency by implementing TensorFlow data pipeline with prefetch buffering and efficient batching
- Developed production solution processing 100+ comments/second by integrating Gradio for real-time inference across 6 toxicity categories

Pathfinding Visualizer | *React.js, JavaScript, Algorithms* | danish.bio/pathfinding-visualizer — GitHub

- Engineered an interactive pathfinding system implementing Dijkstra's, A*, BFS, and DFS algorithms with real-time visualization
- Optimized rendering performance by implementing efficient grid updates and state management for 20x20 interactive node system
- Implemented recursive division and randomized maze generation algorithms with guaranteed path existence

3D Robotic Arm Visualizer | *Three.js, React, WebGL, Framer Motion* | danish.bio/RoboticArm — GitHub

- Engineered a real-time 3-DOF robotic arm visualization system with 6 interactive control points using quaternion-based transformations
- Developed a reusable animation scheduling system for handling multi-axis rotations across base, upper, and lower arm segments
- Implemented orbital camera controls with constrained polar angles and interactive grid-based environment

Technical Skills

Languages: Python, C/C++, JavaScript, HTML/CSS, SQL
Technologies: React.js, Next.js, Three.js, Supabase, PostgreSQL, TensorFlow, PyTorch, Unity 3D, MATLAB
Developer Tools: Git, Docker, AWS, Linux, VS Code, PyCharm, Figma, Blender, Fusion 360, UiPath
Libraries & Frameworks: pandas, NumPy, Matplotlib, scikit-learn, OpenCV, Pyodide, Gradio, Framer Motion, Monaco Editor