JATIN MAYEKAR

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An innovative AI Prompt Engineer and Robotics Specialist with a solid foundation in mechanical engineering and a rich background in robotic applications. Bringing forth 2+ years of industry experience, a U.S. patent, and a published IEEE T-RO journal paper. Adept at developing, testing, and optimizing AI prompts, with a proven track record of leading robotics applications in the electronics industry.

Education | **M.S. Mechanical Engineering, Robotics Specialization** | University of Colorado Boulder, USA (2020) | CGPA: 3.64 /4.00

Skills | Programming: Python, JavaScript, RAPID, Linux, MATLAB | Frameworks: Flask, Geist UI | Tools: Google Colab, OpenAI, Google Cloud Pub/Sub, ipywidgets | Databases: Google Drive API | Other: OAuth2.0, Gmail API, CORS, Axios

Project Experiences

AI Web Application Developer | Flask-GPT Web Interface | May 23 - Oct 23 | GitHub
Developed an AI-driven web application to enhance user experience and real-time interactions

- Utilized GPT-3.5 Turbo for dynamic and intuitive user interactions within Flask
- Incorporated text-to-speech for dynamic audio responses
- Managed sessions securely using Flask-Session
- Integrated Google's OAuth2.0 for authentication & Gmail API; established real-time email notifications via Google Cloud Pub/Sub
- Implemented robust logging mechanisms and integrated CORS for cross-origin requests

Web Application Developer | Nerd AI Chat Interface | May 23 - Oct 23 | GitHub
Crafted a chat interface for interactive AI communication and multimodal responses

- Enhanced UI with Geist components for seamless user interaction
- Facilitated real-time AI-backend communication through Axios
- Developed audio recording features to diversify user input methods
- Implemented robust error-handling mechanisms for API calls

AI Engineer | Automated Document Processing & Knowledge Retrieval | May 23 - Oct 23 | GitHub
Designed a tool for AI-driven data extraction and knowledge retrieval from PDFs

- Automated data extraction from PDFs using Google Colab and integrated GPT for text refinement
- Deployed advanced text processing techniques for precise information extraction
- Addressed challenges in large text querying and answer refinement using AI

AI Developer| TextualPrompt3D: Point Cloud and Mesh Generator| May 23 - Oct 23 | GitHub
Pioneered a system to transform textual prompts into detailed 3D models

- Overcame challenges in converting abstract textual prompts into 3D point clouds using OpenAI models
- Introduced an interactive UI using ipywidgets to enhance user experience
- Designed to handle diverse textual prompts and produce PLY format meshes

AI Systems Developer| DocuQuery: Conversational Document Retrieval System| May 23 - Oct 23 | GitHub
Extracted and processed complex PDF document data using conversational AI

- Introduced an advanced search mechanism leveraging OpenAI embeddings
- Developed an intuitive conversational interface for document queries
- Elevated document processing with real-time AI-driven insights

AI Developer| PDF Highlighter: Content-Type Annotation System| May 23 - Oct 23 | GitHub
Automated the visual highlighting and annotation of various PDF content types

- Pioneered the digital transformation of hard copy documents with AI-driven visual annotations
- Enhanced document accessibility by distinguishing visual content types

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Work Experience

Robotics Applications Engineer | ABB Robotics | MI, USA | Jun 21 – Present |
Leading applications and development for the electronics industry

- Lead the technical solution for ABB's 1st collaborative PCB assembling robot with a 7-axis YuMi via RobotStudio & RAPID
- Script RAPID code for robotic screwdriving solution for the micro-torque range with support for TCP/IP, Ethernet/IP, & Profinet
- Simulate PCB assembly and screwdriving applications in RobotStudio to optimize cycle time by 40%
- Implement a new SafeMove safety strategy for a collaborative educational robotics application reducing signal usage by 50%
- Evaluate & test an auto-TCP (Tool Center Point) calibration software reducing cycle time by 90% of the current solution
- Support ABB Robot demos for 6 automation conferences (Automate, IMTS & ATX-West)
- Present new products & resolve technical issues for 10 customers

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Key Accomplishments

- Invented a patented soft rolling robot, showcasing innovation and technical expertise.
- Successfully led the technical solution for ABB's first collaborative PCB assembling robot.
- Optimized robotic applications, achieving up to 40% improvements in cycle times.
- Demonstrated versatility by designing, coding, and implementing various robotics projects from kinematic sculptures to autonomous warehouse robots.