Riccardo Pirruccio

Austin, TX • rickp1795@gmail.com • 2817254925 • https://rickystech.com/ • www.linkedin.com/in/riccardopirruccio • https://github.com/RPirruccio

SKILLS

Frontend Development: JavaScript, TypeScript, React, Next.js, Gatsby, Redux, Zustand, React Query, HTML5, CSS3, SCSS, SASS, Styled Components, TailwindCSS, Bootstrap, Material UI, Webpack, Responsive Design, Progressive Web Apps, Web Accessibility, ARIA, SEO Optimization, Performance Optimization, Lazy Loading, Code Splitting, Tree Shaking, Critical Path CSS, CSS Grid, Flexbox, CSS Modules, PostCSS, jQuery, D3.js, Three.js, WebSockets Client, GraphQL Client, Apollo Client

Backend Development: Node.js, Deno, Express, Python, FastAPI, Flask, Django, Pydantic, HTTPX, RESTful APIs, GraphQL, Apollo Server, GraphQL Yoga, WebSockets, Server-Sent Events, Microservices, Monolithic Architecture, Serverless, AWS Lambda, Azure Functions, Google Cloud Functions, Middleware, Authentication, Authorization, JWT, OAuth 2.0, Rate Limiting, API Documentation, OpenAPI, Swagger, Postman, Redis, RabbitMQ, BullMQ, Message Brokers, Event-Driven Architecture

Database Technologies: PostgreSQL, MySQL, SQLite, MongoDB, Neo4j, Redis, Supabase, SQL, NoSQL, Graph Databases, Time Series Databases, TimescaleDB, Vector Databases, Pinecone, ORM, Prisma, Mongoose, Database Design, Normalization, Indexing, Query Optimization, Database Migrations, Database Backup, ETL, Performance Tuning, Connection Pooling, ACID Transactions

Developer Tools: Git, GitHub, GitLab, Trello, npm, Yarn, Babel, Vim, Bash, Unix/Linux, VS Code, Docker Compose, Makefiles, ESLint, Prettier, uv, Poetry, pip, Pylint, Black, Agile Methodology, Scrum, Test Driven Development (TDD)

Cloud & DevOps: AWS, Google Cloud Platform, DigitalOcean, Cloudflare Workers, Heroku, Netlify, Vercel, Docker, Kubernetes, Jenkins, Terraform, Prometheus, Grafana, Datadog, New Relic, Nginx, Load Balancing, Horizontal Scaling, Vertical Scaling, Continuous Integration, Continuous Deployment, CI/CD, Content Delivery Network

Testing & Quality Assurance: Jest, Mocha, Chai, Jasmine, React Testing Library, Cypress, Playwright, Puppeteer, Selenium, Pytest, Unittest, Sinon, Nock, MSW, Fixtures, Mocks, Stubs, Spies, Integration Testing, End-to-End Testing, Unit Testing, Component Testing, API Testing, Performance Testing, K6, Stress Testing, Load Testing, Test-Driven Development, Code Coverage

Data Science & Analytics: Pandas, NumPy, Matplotlib, Seaborn, Plotly, Streamlit, Gradio, Jupyter Notebook, JupyterLab, Google Colab, Dask, Hadoop, Hive, SQL Alchemy, Tableau, Power BI, Data Visualization, Data Preprocessing, Data Cleaning, Data Pipeline

Project Management: Project Coordination, Strategic Planning, Scope Management, Resource Optimization, Project Lifecycle Management, Process Automation, KPI Tracking, Cost Reduction Strategies, Risk Mitigation, Change Management, Stakeholder Communication, Executive Reporting, Technical Communication, Project Documentation, Technical Diagramming, Workflow Visualization, System Mapping, Mermaid.js, Cross-functional Collaboration, Agile Methodology

Manufacturing Engineering: New Product Introduction (NPI), Workflow Optimization, Root Cause Analysis, Tooling Design, Fixture Design, Material Procurement, Special Process Planning, Manufacturing Process Design, BOM Management, Obsolescence Handling, Continuous Improvement, Quality Assurance, Work Instructions, Rework Procedures, Manufacturing Integration, ERP Coordination, Data Aggregation, Process Documentation, Technical Drawing Interpretation

Mechanical Engineering & CAD: GD&T (Geometric Dimensioning and Tolerancing), SolidWorks, Siemens NX, Mastercam, Wire EDM Programming, Milling Machine Programming, CNC Programming, Mechanical Design, CAD Modeling, CAM Programming, Technical Drawing Creation, Tolerance Stack-up Analysis, Design for Manufacturability (DFM), Fixture Design for QA, Inspection Gauge Design

AI & LLM Application Development: LangChain, LangGraph, LangSmith, Cline, LangChain Agents, LangChain Templates, OpenAI API, Prompt Engineering, ReAct Pattern, Few-Shot Learning, Retrieval-Augmented Generation (RAG), Embedding Generation, Document Loaders, Semantic Search, Chatbots, Dockerized AI Workflows, Model Context Protocol (MCP), Cognitive Architectures

EXPERIENCE

Technical Project Manager 03/2024 - Present
Applied Materials

- Engineered a scalable Python/Tkinter application for obsolescence management, featuring a modular codebase and rapid-iteration workflows. Integrated advanced “Where Used” BOM graph analysis using NetworkX and Dask to enable efficient in-memory traversal (BFS/DFS) of large product structures. The tool was adopted by 7 business units to streamline component risk assessment and accelerate decision-making across multiple projects.
- Led strategic retirement initiative for obsolete product configurations, designing Mermaid process-flow diagrams and coordinating across spares, product line, and data science teams; developed Python tooling leveraging NetworkX and Dask to rapidly analyze thousands of BOM components—reducing manual stakeholder analysis by ~5 hours per cycle.
- Curated a centralized throttle-valve knowledge wiki, collaborating with mechanical, electrical, and supply-chain stakeholders to standardize part-categorization guidelines, identify and correct numerous misclassified components, and improve spend-data accuracy supporting critical process-improvement initiatives.
- Implemented lean manufacturing and Agile process optimizations across multiple business units, streamlining product-configuration workflows, enabling faster transitions to new technologies, reducing engineering cycle times, and enhancing resource utilization aligned with strategic business objectives.

Manufacturing Engineer 08/2022 - 03/2024
Applied Materials

- Coordinated project management obsolescence of hundreds of Engineering Specification Waivers, engaging closely with stakeholders including Material Buyers, Customer Reps, Suppliers, and Design Engineers to gather crucial insights. Leveraged this intelligence to judiciously adapt and optimize a Python codebase, automating and refining workflows, which aided in efficiently repurposing millions of dollars of inventory and closure of obsolescence projects. This approach allowed me to manage multiple obsolescence projects at once and provided a model for the 50+ member global team to similarly boost their efficiency.
- Developed and maintained comprehensive Python codebase that automated critical project tasks and streamlined end-of-life part management through an advanced 'Where Used' BOM parsing module, enabling engineers to efficiently identify component dependencies across business units and integrate replacements with precision, significantly enhancing operational efficiency and strategic decision-making.
- The Python codebase I engineered is encapsulated in a user-friendly GUI. Its use is projected to yield over 20,000 hours in labor savings for obsolescence projects, translating to an estimated cost saving of around a million dollars. Additionally, it incorporates a SQL database I optimized for enabling sub-second queries of system information. This feature adeptly aggregates dynamic data from thousands of rows across multiple Excel files, granting my team with instant, actionable insights about the systems we deliver to our customers. This capability has played a pivotal role in closing out ESWs and mitigating mid-project scope creep.

Software Engineer Resident 01/2023 - 04/2023
Galvanize Inc

- Served as a JavaScript mentor in an 8-month online program, covering 20+ full-stack JavaScript-based concepts, and consistently received positive feedback for debugging support, code assistance, and resolving Git version control issues, leading to improved student performance and problem-solving skills.
- Collaborated with over 80 students in junior and senior cohorts to debug SQL and NoSQL databases, optimize Docker container configurations, and ensure seamless deployment on Amazon Web Services, thereby improving code quality, application performance, and DevOps practices.
- Conducted 10+ personalized tutoring sessions and answered 100+ help desk tickets, covering backend and frontend development concepts such as RESTful API design, database management, server-side scripting, SEO optimization, state management, and testing React components.

Manufacturing Engineer 09/2019 - 04/2022
Athena Manufacturing, LP

- Led project management for a semiconductor and aerospace equipment supplier faced with tight deadlines, resource constraints, and scope creep, steering projects from initiation to completion by employing strategic planning and cross-functional collaboration. Regularly coordinated with teams to address bottlenecks and manage scope changes, optimizing resources to meet customer deadlines, a testament to effective stakeholder communication.
- Tasked with a role pivotal to New Product Introduction (NPI), established efficient, cost-effective manufacturing processes from scratch; utilized insights from previous projects for meticulous workflow analysis and avoidance of common pitfalls, leading to targeted manufacturing protocols that accelerated production readiness.
- Integrated the use of SolidWorks and NX for crafting detailed GD&T focused 3D drawings of critical manufacturing tooling, while also overseeing material and special process procurement, as well as in house operation planning. This multi-pronged approach synchronized manufacturing integration with supplier coordination, resulting in a harmonized production and supply chain, pivotal for timely and quality product delivery.

Manufacturing Engineer 09/2017 - 06/2019
Aerospace Techniques, Inc.

- Developed specialized machining tools and quality control fixtures using Mastercam, and programmed wire EDM and milling machines; this specific tooling and programming expanded the shop's capabilities, enabling the successful execution of more complex projects or parts.
- Led team efforts to enhance manufacturing output and quality assurance, performing detailed root cause analyses and revamping fixtures and inspection gauges. These initiatives accelerated production cycles and refined bulk quality checks, driving process optimization and improving operational reliability.
- Confronted with elevated scrap rates in manufacturing, evaluated non-conforming parts and designed effective rework processes while concurrently writing and updating work instructions. These integrated actions led to a marked decrease in scrap rates and a sustainable boost in manufacturing efficiency.

PROJECTS

Austin LangChain Project 10/2023 - Present https://aimug.org/ | https://github.com/RPirruccio/austin_langchain
LangChain, Streamlit, Docker, Python, AI

- Educator and contributor to an Austin, TX group, dedicated to advancing and nurturing a vibrant community of LangChain Artificial Intelligence developers. Instrumental in driving knowledge-sharing, collaboration, and innovation among enthusiasts and professionals in the field.
- Authored comprehensive tutorials in Jupyter Notebooks and Markdown, hosted on GitHub, focusing on utilizing Streamlit for intuitive UI development in Python and leveraging Docker to ensure the reproducibility of LangChain AI projects across development teams.
- Engineered an application demonstrating the integration of Streamlit, Docker, and LangChain templates in developing a dynamic retrieval-augmented generation dashboard capable of querying information from documents in Google Drive folders to "chat with your files". This demonstrated the practicality of leveraging large language models for data analysis and reporting, setting a new standard for knowledge-driven decision-making in project management and business intelligence.
- Featured speaker at Techstrong.ai's "AI In Action" virtual event, highlighting the integration of Streamlit and LangChain for AI development, presenting and simplifying complex concepts for a diverse national community of AI developers.

Trello MCP 02/2025 https://github.com/aimug-org/austin_langchain/tree/main/mcps/trello_mcp
HTTPX, Pydantic, Model Context Protocol (MCP), uv, REST APIs, JSON, Cline, Claude Desktop

- Built a Python-based Model Context Protocol (MCP) server for a community hackathon project contributed to Austin LangChain, enabling programmatic Trello interactions (boards, lists, cards) through a standardized interface.
- Developed a resilient Trello API client using HTTPX with timeout controls, retry logic, and centralized error handling for stable and consistent API access.
- Leveraged Pydantic for strict schema validation and environment-based configuration, simplifying deployment with secure API key and token management.
- Integrated live-reload development support, interactive debugging via MCP Inspector, and compatibility with tools like VSCode's Cline extension and Claude Desktop for smooth local development.

Red Bean Shop 09/2022 - 10/2022 https://github.com/rpp2204-fec-redbean/Red-Bean-Shop
React, Express.js, Node.js, JavaScript (ES6+), HTML5, CSS3, Server-Side Rendering (SSR), Webpack, Babel, Jest, ESLint, Prettier, Nodemon, Git, GitHub, Google Lighthouse

- Developed Red Bean Shop, an interactive e-commerce web application designed to provide users with a seamless online shopping experience through fast load times, intuitive navigation, and detailed product information.
- Implemented server-side rendering (SSR) using React and Express, significantly enhancing SEO performance and enabling faster initial page loads for improved user engagement.
- Engineered dynamic and reusable product display components, facilitating efficient browsing, filtering, and detailed views to enhance customer satisfaction and drive conversions.
- Achieved exceptional front-end performance (99/100 Google Lighthouse score) by integrating optimized build processes with Webpack, component-level code splitting, and rigorous testing through Jest and ESLint for robust, maintainable code.

EDUCATION

Hack Reactor 04/2022 - 01/2023
Certificate Advanced Software Engineering

- 1000 hours of coding in JavaScript, React, Express, PostgreSQL, MongoDB, and MySQL in an Agile environment, including solo coding, pair programming, and team collaboration.

University Of Texas at Tyler 08/2015 - 05/2017
Bachelor of Science Mechanical Engineering

Houston Community College 08/2013 - 05/2015
Associates in Science Engineering Science