JOE TILSED

LEAD SOFTWARE ENGINEER

PROFILE

Helping lead the way with GenAI LLMs, Python APIs, Software Development Lifecycle Standards, Cloud Adoption, Automation, Continuous Integration and Delivery, Test Driven Development and other Modern Engineering Practices, just to name a few.

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SKILLS

SOFTWARE DEVELOPMENT LIFECYCLE

PYTHON REST APIs

GENAI LLMs AND AI PROMPT ENGINEERING

CLOUD COMPUTNG

CAREER HIGHLIGHTS

MEETING MINUTES GENERATOR

April 2024

I developed end-to-end the Meeting Minutes Generator, leveraging advanced natural language processing techniques and automation to extract valuable insights from meeting transcripts. The system autonomously generated attendance logs, action items, meeting minutes, and other relevant details without prior context about the meeting's content or participants' roles.

By integrating sophisticated algorithms for entity extraction, sentiment analysis, and topic modelling, the generator ensured accuracy and provided valuable insights into meeting dynamics. Its seamless integration with existing collaboration tools streamlined post-meeting documentation processes, reducing manual effort and enhancing overall productivity.

This project specifically showcased my ability to innovate and deliver AI-driven solutions that optimize workflow efficiency and knowledge management in real-world settings.

LLM CONNECTOR API

August 2023

Overseeing and implementing the design through to the development and deployment of the LLM Connector API, a pivotal component centralizing all GenAI interactions across diverse client environments. Collaborating closely with AI specialists, I ensured the API's seamless integration with our GenAI models, optimizing its architecture for high performance and low latency. Robust authentication and authorization measures were implemented to uphold data security and access controls.

The API's success was evident in its widespread adoption, becoming a cornerstone of our GenAI platform and receiving positive feedback for its scalability, reliability, and efficiency. This project showcased my ability to architect sophisticated GenAI systems and deliver impactful solutions at the intersection of advanced technologies and client needs.

BLUE PRISM REMOTE DIGITAL WORKER COMMS

May - November 2021

I spearheaded the modernization of a legacy product architecture and procedures, implementing a strategic plan that encompassed migrating to microservices, adopting Docker and AWS ECS for orchestration, and implementing CI/CD pipelines. Additionally, I designed robust communication channels for remote digital workers using REST APIs and RabbitMQ, improving data transfer efficiency and system resilience.

My focus on scalability included load-balancing strategies, auto-scaling mechanisms, and efficient resource utilization, ensuring optimal performance under varying workloads. I established monitoring frameworks and conducted regular performance tuning, fostering a culture of continuous improvement and innovation within the organization while aligning with industry best practices.

IBM TECHU PRAGUE

October 2019

Myself and a few others in my team were invited and flown out to attend IBM’s TechU hosted in Prague. With world-class techies giving us detailed sessions on topics such as Artificial Intelligence, Machine Learning, Big Data, Cloud Architecture and many more.

All of the speakers were and are best-in-class, world experts, with the likes of IBM’s Wolfgang Bosch who is the Business Development Executive for Watson and AI Innovation. The sessions were very personal small audiences, sub 20 people, so we could really dive deep into the topics with specific questions and answers, with many 1:1 follow up sessions later into the evenings.

MY AUTHENTICATION PACKAGE

June - July 2019

J.P. Morgan & Chase were rolling out a new SSO (Single Sign On), password-less authentication system, which meant application developers needed to migrate their current authentication methods over to this new system. This was no small task, and to correctly verify, authenticate and validate users using the new system was vastly different to the previous access-control tool that was in place. I saw that with countless applications needing to make this change (nearly 1,500 lines of code per application), it would cause issues.

So I created a Python package which is an intermediary between the application and the authentication tool. This standardised the authentication process for application teams, which only took them 5 lines of code while using my package, increasing security with above-industry standard authentication and decreasing technical debt. It quickly became the firm's strategic standard for Python authentication to use my package.

FIREBASE PYTHON PACKAGE

February 2019

I wrote the Python package 'firebase' which is a Python interface to Google's NoSQL Firebase REST API offering. Currently (as of April 2024) the package is downloaded 40,000+ times a month, with a total of over 1.5 million downloads. The package converts a user's NoSQL database into a Python-readable object, with simple data manipulation, it can also handle complex queries such as ordering (even though it is inherently a nonstructured database schema).

OS BUILD AUTOMATION

2018 – 2019

There was a business need to improve the time to market on the provisioning of new operating systems for an accelerated computing offering. At the time the system that was in place could take weeks and in some cases months to complete, with a success rate of almost zero since every order would require manual intervention.

I wrote a suite of APIs which communicated with our estate management nodes, the firm's compute ordering tool and the firm's build pipeline orchestration tool. This new solution has been operational since, with almost daily production releases, with new features released to our clients with our continuous innovation, improving our customer's user experience. The provisioning times went down from weeks/months to just hours, with it being fully automated end-to-end. Removing the need for manual intervention as a negligible number of builds require attention, and those that do are automatically notified to the team without the client even knowing there was an issue.

JPMC'S FIRST PYTHON END-TO-END SDLC PIPELINE

October 2018

I had noticed that a fully automated Jenkins pipeline for Java was implemented internally, however there was no fully complete end-to-end Python solution. I was writing a suite of Python REST APIs at the time, releasing new features into production on a somewhat regular basis. However, the major blocker was from lengthy wait times from other teams testing, scanning and approval of my code. I took the opportunity to write the firm's first fully end-to-end Python SDLC pipeline, it was written in Groovy and ran on Jenkins, just like the Java one to keep the tools standardised.

It automated the build, testing, scanning and deployment of an application, and its subsequent new features into a production environment, automatically meeting the firm's and regulatory requirements via the automated scans and associated "toll-gates". All of this would happen automatically from the point a developer was to push their code into an SCM (Source Code Management System, for example, GIT), which they would have to be doing anyway. For a firm with over 40,000 technologists, this huge time-save was a big deal. I was flown over to New York and New Jersey and gave presentations to 100s of the firm's most senior developers. By showing them my work and implementation strategy, they too could utilise my pipeline for their applications. Saving them and the firm time, increasing value-add throughput, and lowering code smell, all while increasing their application's security and improving their time to market.

CLIENT SENTIMENT ANALYSIS TOOL

September 2017

I was part of a team which developed a system and method for implementing a client sentiment analysis tool. We did the initial development within just 12 hours in a Hackathon. This later led to me becoming a recognised inventor by the US Patent & Trademark Office in July 2018 (20190220777).