# Maxell G. Milay

**AI & Machine Learning Engineer**
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## SUMMARY

I'm currently an AI Engineer specializing in integrating AI solutions through LLMs and MLOps. I have been recently applying AI Engineering concepts such as prompt engineering and RAG into industry-level software solutions. I also create custom ML models and build pipelines for Continuous Integration (CI), Deployment (CD), and Training (CT) to prepare myself for a GCP Professional Machine Learning Engineer Certificate. Other than that, I particularly enjoy automating workflows, ensuring smooth transition from development and model training to production.

## EXPERIENCE

**BPOSeats** **Mandaue City, Cebu**
**AI Engineer** *June 2024 - Present*

- Oversaw the initial planning and development phases of a machine learning productivity model projected to increase operational efficiency by 55%.
- Optimized LLM API calls through prompt engineering, leading to a 40% decrease in service costs
- Co-led a novel approach in implementing task estimation through engineering with OpenAI LLMs after integrating large volumes of company historical productivity data
- Spearheaded research in software effort estimation spanning the fields of NSGA genetic algorithms, LLMs, and simulations to improve current effort estimation implementations
- Integrated LLM API cost tracking in the entire application ecosystem by monitoring token usage per feature, and creating impactful visualizations and saved 35% of operational costs

**Full Stack Web Developer** *September 2023 - May 2024*

- Pioneered the implementation of the company's first vector database in PostgreSQL, enabling the development of advanced AI retrieval algorithms
- Integrated Vue and Django unit tests into automated pipelines, reducing deployment failures to production by 80%.
- Built a help center chat bot that utilized Retrieval Augmented Generation, which was projected to reduce complaints to CX by 75%
- Created a pipeline migrating company documentation data to a vector database, which enabled vector operations for the chatbot
- Debugged code, resulting in a significant decrease in bugs and contributing to a 65% increase in system availability.

**BitWork Solutions** **Florida, Miami**
**DevOps Engineer** *July 2024 - December 2024*

- Setup CI linting and testing pipelines for across 3 projects within the company
- Integrated AWS S3 and DynamoDB into a mobile application that saves raw captured image data for preprocessing
- Migrated code from a custom built backend into AWS Lambda for better server scaling

**AI Pilipinas Cebu Chapter** **Cebu City, Cebu**
**AI Infrastructure and Deployment Advocate** *July 2024 - Present*

- Researched relevant techniques in MLOps, including ML workflows, from data ingestion and preprocessing, feature engineering, model development and training, model evaluation, deployment to production, and performance monitoring
- Created Medium articles revolving around Google Cloud's AI tools, including Vertex AI and other cloud services for MLOps and ML workflows

**University of the Philippines Computer Science Guild** **Cebu City, Cebu**
**Lead Software Engineer** *November 2023 - Present*

- Led a team of 7 designers and 10 developers in creating multiple versions of the official UP Computer Science Guild Website
- Established the entire workflow between designers and developers, rooting from relevant agile principles
- Deployed the website with CI/CD and GitHub Actions through Docker on university servers
- Managed and reviewed the UX of designers and code of each developer, ensuring code quality and performance

**Symph** **Cebu City, Cebu**
**Web Developer Intern** *December 2022 - March 2023*

- Deployed and implemented changes to client websites in collaboration with backend and DevOps teams, ensuring minimal disruption.
- Addressed issues and implemented recommendations over 2 projects on existing client web pages, improving usability and customer satisfaction.

## LEADERSHIP, PROJECTS, & RECOGNITION

**Beacon**

- Created a career guidance application that utilizes generative AI to provide users with personalized visual roadmaps towards their viable career option based on their user profile information.
- Led a team of 5 in building a working prototype of the application within the span of 6 hours
- Implemented a storage system and authentication through Google Firebase and leveraged OpenAI LLM models

- Garnered the 1st Place of the first UP Computer Science Guild Komsai Week Hackathon in 2024

**Finite Automaton Visualizer**

- Created a web application that generates DFA graphs based on regular expressions, and also verifies string inclusion by visually simulating the algorithm through a user-friendly and interactive interface.
- Led a team of 4 in creating a working prototype of our application through agile development
- Implemented the core algorithm which involved generating an abstract syntax tree from a regular expression in consideration of precedence

**Lakbai**

- Created a GIS application that uses a dynamic, data-driven pedestrian accessibility index powered by a fuzzy logic system for promoting sustainable and equitable urban mobility in the Philippines within the span of 2 weeks
- Awarded as the champion of the 2024 Philippine Junior Data Science Challenge hosted by the UP Data Science Society
- Led the integration of the fuzzy inference system and multilayer perceptron into the application
- Deployed the frontend using Vercel, the backend using Google Cloud Run, and the postgresql database using Google Cloud SQL
- Created CI/CD pipelines using Github Actions

## EDUCATION

**University of the Philippines Cebu** — **Cebu City, Cebu**

**Bachelor of Science in Computer Science**

- Led 3 teams through small and large scale competitions and projects, achieving the best competition places and highest ratings

**Philippine Science High School - Central Visayas Campus** — **Argao, Cebu**

**STEM Strand** — *High Honors & Excellency in Physics*

- **Project DALOY** - Drone-based Depth and Atmospheric Level Open-Source monitoring device for the Filipino Youth
- **Thesis** - Simulated Biomimicry of Photovoltaic Tree Architecture Based on the Phyllotaxy and General Tree Crown Shape of *Pinus Strobus* (Eastern White Pine)

## CERTIFICATIONS

**Machine Learning Specialization** — **DeepLearning.AI & Stanford**

- Completed 3 hands-on courses involving supervised, unsupervised, and reinforcement learning, along with neural networks using TensorFlow and Scikit-learn frameworks
- Replicated the Lunar lander reinforcement learning problem and solved through Deep Q Learning using the Proximal Policy Optimization (PPO)
- Created a movie recommender system implemented using vectorization and similarity search of metadata
- Built an unsupervised customer segmentation model using K-means clustering using each customer's spending score and yearly income
- Built and compared different prediction models for house pricing such as Linear, Random Forest, XGBoost, CatBoost regressors, and more

**Deep Learning Specialization** — **DeepLearning.AI & Stanford**

- Completed 5 hands-on courses around neural networks, and learned various optimization techniques, along with ML development iteration best practices
- Built industry grade CNNs and RNNs from scratch like VGG-16/19 and variations of the MobileNet, achieving 77% and 78% validation accuracies respectively both using the CIFAR-10 dataset

## SKILLS & INTERESTS

- **Languages:** English, Filipino, Cebuano, Japanese (Introductory)
- **Hobbies:** Road Cycling, Hackathon, Physics
- **Programming Languages**: Javascript, Typescript, Python, C, C++
- **Technologies/Frameworks**: React, Next JS, Vue, Django, Docker, PostgreSQL, LangChain, TensorFlow, Pandas, Numpy, GCP, AWS