Lalu Erfandi Maula Yusnu

MACHINE LEARNING ENGINEER

Profile

Experienced and Dedicated Machine Learning Engineer as Remote worker with 7+ years of experience in researching and developing successful predictive models with deep learning and computer vision algorithms such as image segmentation, similarity detection, text localization, recognition, and extraction. Proficient in writing clean and quality code with Python and libraries such as PyTorch, PyTorch Lightning, OpenCV, Pillow, scikit-learn, numpy, pandas, Hugging Face, and MLflow. Experienced in building production environments for Machine Learning as a Service with Amazon AWS, Kubernetes, EC2, EBS, and more. Led end-to-end data pipeline projects, from data acquisition and ingestion to data lake and warehouse management, and deployed machine learning models as scalable microservices using Gradio. Successfully collaborated with stakeholders and cross-functional teams to implement AI/ML solutions, particularly in healthcare for TB drug forecasting, enhancing resource allocation accuracy and supporting digital health transformation efforts in Indonesia. Managed and mentored teams of machine learning and data engineers, developing and executing strategies aligned with company goals to drive innovation and business impact.

Work Experience

Senior Lead Machine Learning & Data Science Engineer, TabLogs

NOV 2024 — PRESENT

- AI & Data Strategy — Turned C-suite vision into a roadmap of data products: AI-template generation, high-volume PDF generation, automated geotech logging, and database insight tools with LLM .
- AI Template Generation (in progress) — Developing an AI micro-service that turns PDF log reports into structured JSON templates. By combining computer-vision segmentation with Qwen Vision OCR, the service is on track to cut template creation from hours to minutes and slot straight into TabLogs' existing Laravel + Angular stack.
- PDF Generation Pipeline: Architected a stateless Go microservice that renders PDFs via a headless-browser pool, streams files to S3, and serves signed URLs through Laravel. Deployed on AWS ECS/Fargate with Terraform; queue-based autoscaling and k6 load tests safeguard performance under peak demand.
- Geotech Log Import Automation — Built an OCR-driven import/export toolchain: a custom segmentation model pinpoints depth markers and key fields, then OpenAI-fine-tuned and Qwen LLMs structure the content, automatically ingesting logs into the TabLogs system and lifting accuracy while eliminating manual data entry; produced an executive comparison report on model variants.
- Event-Driven MLOps — Built a RabbitMQ Push/Monitor/Manager layer and bulk OCR workflow that splits PDFs into per-page jobs, stores them in S3, and queues thousands daily.
- DevOps, CI/CD & Load Testing — Own Bitbucket Pipelines 'Docker 'ECS flows, Terraform IaC, and k6 load tests that validate autoscaling
- Leadership & Full-Stack Delivery — Lead and mentor a 2-person AI/Data Science pod while working hands-on as DevOps and Laravel backend engineer, integrating Python FastAPI microservices.

Details

Indonesia

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Links

Linkedin

Twitter

Github

Skills

- Python
- PyTorch & Pytorch Lightning
- HuggingFace Transformer
- TensorFlow & Keras
- NumPy & Pandas
- sklearn & Matplotlib
- OpenCV & Pilow
- FastAPI
- SQL
- MLFlow
- Java
- Git, Kubernetes, Docker
- Linux Administration
- Amazon AWS
- Google Cloud Platform

Machine Learning Engineer, PT Tigapilar Maju Mandiri

JAN 2018 — DEC 2024

- **Engineered an Advanced Search Engine**: Took the lead in designing and implementing a sophisticated search engine using Hugging Face's sentence transformers and NLTK, connected with Elasticsearch for vector similarity searches. This project exemplified my skill in applying NLP technologies to enhance data accessibility and search functionality, further underlining the versatility of my technical expertise in addressing complex problems.
- **Developed a Face Recognition Microservice**: Directed the creation of a face recognition microservice with FastAPI, integrating it seamlessly with a Golang backend. This work involved close collaboration with the team to ensure the microservice's robust performance and secure deployment, demonstrating a keen ability to merge security principles with advanced ML solutions.
- **Pioneered DevSecOps Practices**: Led the integration of security practices into the DevOps pipeline, collaborating closely with security engineers to strengthen software development and deployment processes. This initiative significantly enhanced the system's security posture, establishing a new benchmark for secure software development.
- **Led the Design and Deployment of an OCR System**: Spearheaded a cross-functional team to develop a comprehensive OCR system for Indonesian ID Cards, utilizing advanced deep learning models (UNet, CRAFT, CRNN) and LayoutLM. Implemented as a scalable microservice using FastAPI, this system significantly improved data processing efficiency and accuracy.
- **Architected MLaaS Production Pipeline on AWS**: Built a robust Machine Learning as a Service (MLaS) infrastructure with AWS technologies (CloudFormation, EC2, EBS, Kubernetes), ensuring scalability and high availability. This infrastructure streamlined model deployment, notably reducing operational costs and accelerating deployment processes.
- **Innovated Synthetic Data Generation for Model Training**: Developed a synthetic data generator using OpenCV and Pillow to enhance model training datasets, further enriched by a custom web scraper in Python for additional data diversity. This innovation led to marked improvements in model accuracy and a reduction in false positives, ensuring more reliable outcomes.
- **Developed a VIN Fraud Detection System**: Created a VIN fraud detection solution for the Jakarta Police Department, employing UNet for precise image segmentation and SiameseNet for effective similarity detection. This solution was instrumental in reducing vehicle fraud incidents.

Advanced Analytic Consultant (Data Architect and Modelling), CHISU USAID, Jakarta

MAR 2024 — SEPT 2024

- Engineered AI/ML Models for TB Drug Forecasting: Led the design and implementation of AI/ML models using PyTorch for Indonesia's Ministry of Health. Conducted data preparation, exploratory data analysis, and deployed prototypes with Gradio. Collaborated closely with Pusdatin and DTO, enhancing TB drug allocation accuracy and supporting digital health transformation efforts.

Education Consultant and Python Course Trainer, LKP ITEC

FEB 2017 — DEC 2019

- Teach Python Basic to OOP and Web Developer with Django Course
- Creating curriculum and standard for another trainer in Python
- Managing and evaluating the performance of the course trainer

Full Stack Web Developer, CV. Bima Jaya

2015 — MAR 2018

- Build CMS from scratch with Django and AngularJs for the Local Hospital Web Site in Mataram City, Indonesia
- Creating web service for patient queue registration system using Django Rest Framework for Mataram City Hospital
- Build Tracking Report System using Django and Django Rest Framework for Government Transportation System Agency in NTB Province

Education

B.Sc in Information Technology, STMIK Bumigora

2006 — 2013

- Grade: 3.14
- Thesis: Web Hosting Manager Application using Java as server-side apps and PHP CodeIgniter as billing and registration system in Ubuntu Server

Courses

Deep Learning Nano Degree, Udacity

NOV 2018 — APR 2019

Deep Learning AI Tensorflow Developer, Coursera

NOV 2022