

**ROBERTO BENEDICT**  
**Machine Learning Engineer**

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**Summary**

I am an inspiring Machine Learning Engineer. I have a background on Mechanical Engineering with interdisciplinary implementations including Machine Learning in my education and recent career. I highly regard values such as, Detail-orientated way of thinking, open-mindedness, apt decision making, and team management. As a side note, I have Interdisciplinary educational background of mechatronics with expertise in data-oriented analysis and quantitative problem-solving skills, dedicated to continuous growth and improvement.

**Work Experience**

**Application Developer**

**Jakarta, Indonesia**

**MOSTRANS**

January - July 2023

- Implemented machine learning including data acquisition, data processing, feature engineering, and model engineering in Route Optimization project focusing on Estimated Time Arrival (ETA) prediction using neural network utilizing TensorFlow. Resulting model had Main Absolute Error (MAE) of 10.44 minutes for trip data with distance data range from 1 m to 150 km.
- Developed Route Optimization API using Flask framework in Python.
- Designed Front-end UI features using ReactJs framework for Mostrack microservice which is intended for vehicle tracking in logistics.

**Research student**

**Bandung, Indonesia**

**Biomechanics Laboratory of ITB**

January 2020 - July 2021

- Conducted a research for developing a markerless optical motion capture system for front crawl swimming stroke which had a resulting model with an average correlation coefficient of 0.95.
- Performed interdisciplinary practice by applying biomechanical knowledge of human movements, kinematics, fluid dynamics, and programming (C++, Python, and MATLAB) to develop supporting programs for the research.
- Implemented existing technologies: CMake, OpenCV, custom technical software SWUM (Swimming Human Simulation Model) by Prof. M. Nakashima, GMM (Gaussian Mixture Model) implementation with pixel-level approach proposed by Z. Zivkovic.

**Research Internship**

**Koganei, Japan**

**GV Lab**

September 2019 - January 2020

- Experienced culturally diverse laboratory with students from at least 20 countries.
- Added facial recognition as a new feature to a floor cleaning robot repurposed as a pet robot.
- Implemented machine learning using OpenCV library in Python to implement pre-trained model for facial recognition feature.
- Updated an existing drive control system using Raspberry Pi for new features.

**Project Experience**

**Bank Opening Deposit Predictor**

**Jakarta, Indonesia**

**Purwadhika Digital Technology School**

July 2024

Classification model was developed to help the scenario in which a retail bank predict the probability of a client wanting to open a term deposit account. The ROC-AUC metric was used for optimizing TPR and FPR. Notable features include custom binning, cyclical transformers, interpretability optimization using multicollinearity, and random search benchmarking and hyperparameter tuning. Resulting model was able to identify 93% non-subscribers and 72% subscribers. Utilized technologies include Python, Imblearn, Sklearn, LightGBM, Git.

Link: [GitHub JCDSOL-013B](#).

**Mostrack****Jakarta, Indonesia****MOSTRANS**

June - July 2023

Front-end User Interface (UI) features using ReactJs framework for Mostrack microservice in Mostrans Global Digilog which is intended for vehicle tracking in logistics. Clear and stand out UI experience was desired, hence custom features were made (e.g. custom icons, button carousel, card drawer). Utilized technologies include Javascript, React, Typescript, PostgreSQL, Figma, GraphQL, CSS, Git.

Link: [Gitlab Mostrack](#) (private).

**Route Optimization ETA Module****Jakarta, Indonesia****MOSTRANS**

January - July 2023

Developed the ETA estimator model to estimate arrival time of transport trips replacing existing manual human estimation. Its API along with User Interface (UI) were made using Flask framework in Python. Resulting model had Main Absolute Error (MAE) of 10.44 minutes for trip data with distance data range from 1 m to 150 km. Utilized technologies include Python, Flask, PostgreSQL, Tensorflow, XGBoost, DBSCAN, Git.

Link: [Gitlab Route Optimization](#) (private).

**Education****Purwadhika Digital Technology School****Jakarta, Indonesia**

Data Science & Machine Learning Bootcamp. Score 81.32 of 100.

August 2024

Relevant Coursework: Python Programming, SQL Database & Query, Data Wrangling, Data Visualization, Statistical Data Analysis, Machine Learning, Git & Github, Artificial Intelligence, AI & Machine Learning Ethics, and other foundational subjects related to programming, Data Science, and Machine Learning.

**Institut Teknologi Bandung****Bandung, Indonesia**

Bachelor of Science in Mechanical Engineering, cum laude. GPA 3.69 of 4.00.

July 2021

Subfield: Mechatronics

Thesis: Development of A Markerless Optical Motion Capture System for Front Crawl Swimming Stroke.

Relevant Coursework: Numerical Analysis, Industrial Metrology and Statistics, and courses closely related to statistical mechanics (e.g. Thermodynamics, Heat Transfer, Fluid Mechanics).

**Tokyo University of Agriculture and Technology****Koganei, Japan**

Student exchange in Mechanical Engineering. GPA 3.11 of 4.00.

September 2019 – January 2020

Relevant Coursework: Advances in Mechanical Systems Engineering, Human Body Dynamics (Robotics).

Activities: Took part in workshop and laboratory experiences. Developed a design proposal for climate change solution through gamified personal plants growing mobile application for annual Hult Prize competition using Adobe XD, Illustrator, and Animate in a team of 4.

**Leadership, Activities, and Other Experiences****Head of Buddy Department, Co-founder****Bandung, Indonesia****IMSC ITB**

August 2020 - July 2021

- Co-founded International Mobility Students Club of ITB.
- Conceptualized, planned, and managed online international cultural exchange events: international online meetups, virtual tour, and IMSC's annual event INDEX 2021.

**Licenses & Certification****Purwadhika Digital Technology School****Jakarta, Indonesia****Data Science & Machine Learning**

August 2024

**Skills**

**Technical:** Machine Learning, SQL Database & Query, Data Wrangling, Data Visualization, Statistical Data Analysis.

**Design:** Figma, SOLIDWORKS 3D CAD, AutoCAD Mechanical, Adobe Illustrator.

**Programming:** Python, MATLAB, C++, JavaScript, HTML and CSS.

**Language:** Native Indonesian, Fluent English (IELTS 7.5), and Conversational Japanese (JLPT N4).