Avicenna H. Tirtosuharto

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EDUCATION

Bachelor of Science, Computer Science and Data Science **May 2025**

University of Wisconsin - Madison

- GPA: 3.8
- Relevant Coursework: Programming I-III, Artificial Intelligence, Machine Organization, Linear Algebra and Matrices, Data Science Modeling I-II, Big Data Systems, Algorithms, Operating Systems, Multivariate Analysis
- Dean's List Fall and Spring 2021, 2022, 2023

SKILLS

Software: Google Cloud Platform, Docker, Spark, Hadoop File System, Cassandra, MySQL, PyArrow, Git, gRPC, Kafka, Django Python, Flask, SciKit-Learn, Matplotlib, JUnit, PyTorch, SymPy, Jira, GitLab

Concepts: Object Oriented Programming, Data Structures, Natural Language Processing, File Systems, Multi-threading, Distributed Systems, Linux Pipelines, Principal Component Analysis, Factor Analysis, DBSCAN, Model-Based Clustering, xGBoost, Random Forest, K-Means, Multidimensional Scaling, Agglomerative Clustering, Retrieval Augmented Generation, Reranking, Fuzzy Matching

WORK EXPERIENCE

Data Science Intern — Jun 2024-Aug 2024

Mandiri Sekuritas, Jakarta, Indonesia — ***SQL, Gemini, BigQuery, TensorFlow, xGBoost***

- Improved marketing campaigns by developing a user segmentation dashboard in Looker and ETL pipelines from BigQuery DataLakes.
- Enabled efficient outreach to potential users by building an XGBoost model to detect high-potential users from 30k monthly sign-ups.
- Increased registration completion rate by 50% by building an OCR model for state ID information using Gemini's multimodal API and fuzzy matching algorithms.

Data Analyst — Jul 2023-Dec 2023

Wisconsin School of Business, Madison, WI — ***Python, Selenium***

- Streamlined data gathering processes from over 500 rental listing websites across 6 different cities.
- Optimized throughput by more than 50% through IP rotation and rate limiting.
- Presented weekly in stand-up meetings to track project progress and coordinate future user stories.

Research Assistant — May 2023-Jan 2024

Wisconsin Institute of Discovery - Yin Lab, Madison, WI — ***PyTorch, Sci-kit Learn, NumPy, Pandas***

- Collaborated in bi-weekly meetings with a multidisciplinary research team spanning three universities to discuss development aspects of the modeling framework for the Lower Urinary Tract(LUT).
- Analyzed parameters of 10 bio-mechanistic equations integrated into the Lower Urinary Tract model, identifying potential inaccuracies to enhance model precision.

IT Intern — Jun 2022-Aug 2022

PT Alto, Madison, WI — ***Spring IO, PostGreSQL, Java***

- Automated file cleaning for databases of inter-bank transaction reports between the 19 largest financial institutions in Indonesia.
- Designed and implemented programs using Spring IO Framework and PostgreSQL to automate reporting systems for QR transactions.

PROJECTS

Guru AI: Generative AI Study Content — Jun 2024-Current

FastAPI, React, TailwindCSS, Ant Design, SingleStore, JavaScript

- Improved study material generation by developing a Retrieval-Augmented Generation(RAG) system, utilizing open-source Hugging Face reranking algorithms.
- Enhanced user experience by designing a frontend using React, Tailwind CSS, and Ant Design.
- Optimized data management by developing a vector database using SingleStore for efficient content retrieval and storage

GE Healthcare Battery Analysis — Jan 2024-May 2024

RStudio, R

- Performed various inference tests to build insights for optimizing battery performance of GE Health's Portrait Mobile Service.
- Cleaned and processed over 10 million logged battery statistics from hospitals across the US.
- Utilized DBSCAN algorithm to identify and analyze discharge cycles, significantly enhancing the depth of analysis.

Soccer Player Performance Prediction Model — Jan 2024-Current

Python, Selenium, PyTorch

- Developed an automated web scraper to collect data from FBRef, cleaning data from over 1,000 Premier League matches.
- Built a Long Short-Term Memory (LSTM) model to predict soccer player performance, achieving 70% accuracy in predicting player shots within an error margin of ±0.5.

CLUBS

Habitat for Humanity - Campus Fundraising Director

UW-Madison Statistics Club - UW-Madison Representative at Midwestern Undergraduate Data Analytics Competition 2024

Biokind Analytics - Project Lead