Desti Ratna Komala

Data Scientist - CFD Engineer

Jakarta, Indonesia | +62-87782095759 | destiratnakomala@gmail.com | [LinkedIn](#) | [Github](#) | [Portfolio](#)

SUMMARY

Passionate and innovative **Data Scientist** with a robust background in **Computational Fluid Dynamics (CFD)**, **data science, machine learning,** and **IoT**. Demonstrated expertise in leading comprehensive data-driven projects, optimizing R&D processes, and implementing transformative digital solutions. Adept at managing and analyzing large datasets, developing predictive models, and creating intuitive dashboards and visualizations. Experienced in simulating and optimizing fluid dynamics to enhance product performance and sustainability. Skilled in cross-functional collaboration to translate complex data insights into actionable strategies. Committed to driving sustainable innovations and contributing to impactful projects within a dynamic team environment. Excited to apply advanced digital tools and data-driven decision-making to drive Henkel's innovation initiatives forward. Planning to pursue a master's degree in Data Science in 2027/2028 to further deepen technical expertise and contribute to advanced research and development projects.

EDUCATION

Hacktiv8 Bootcamp   **Jakarta, Indonesia**
Data Science Program. Score: 89.48% ([Transcript](#))   *06/2023 - 08/2023*

Telkom University   **Bandung Indonesia**
Bachelor of Physics Engineering (GPA 3.10/4.00) ([Transcript](#))   *07-2014– 07-2021*

SKILLS

General Skills: Machine Learning, Deep Learning, Artificial Intelligence, Computational Fluid Dynamics
CFD and Engineering Tools: OpenFOAM, ANSYS, Paraform, Matlab, Sketchup, Rhinoceros 3D, Grasshopper, Arduino, Multisim, Proteus, OpenStudio, Paraform, CAD software, Visual Basic
Data Analysis & Management: Exploratory Data Analysis, Time Series Analysis, Hypothesis Testing, ETL, Data Cleaning, Data Collection Protocols
Programming Languages: Python
Modeling Algorithms: Regression, Random Forest, Decision Trees, Support Vector Machine (SVM), KKN, NeuralNetworks, Clustering, and Dimensionality Reduction
Machine Learning Frameworks: Tensorflow, Scikit-learn, Pytorch, Keras, NLTK, spaCy, Hugging Face, Transformers, LLM (Large Language Model)
Big Data Technologies: Apache Spark, Google BigQuery,
Database Management: MySQL, PostgreSQL, MongoDB, Redis
Reporting & Dashboards: Microsoft Power BI, Tableau, Streamlit, Flask
Project Management & Collaboration: Agile Methodologies, Cross-functional Team Leadership,
Communication & Facilitation: Presenting Data Insights, Moderating Discussions, Organizing Knowledge Events
Languages: Fluent in Indonesian (Native) and English (Toefl: 587/677 C1 level- ECCT : 4/4)

WORK EXPERIENCE

PT Fortech Indotama   **Jakarta, Indonesia**
Data Scientist   *November 2023 – Present*

- Developed and launched three data-driven products: customer churn prediction, personalized recommendation systems, and sentiment analysis, increasing user engagement by 95% within the first quarter.
- Achieved exceptional model accuracy of 92% across five machine learning models, surpassing project requirements by 2%.
- Led a team to optimize model inference speed, reducing latency by 30% and enhancing user experience,
- Communicated with clients and stakeholders to understand their needs, present findings, and gather feedback for continuous improvement.

Skills: Data-Driven Product Development, Machine Learning Model Development, Model Accuracy Optimization, Team Leadership, Performance Improvement, Client Communication, Tableau, Prediction

SCC Investment Corp   **Jakarta, Indonesia**
Data Analyst   *January 2022 – May 2023*

- Collected and cleaned financial and market data from 10+ sources, processing over 100,000 data points daily, ensuring data integrity and quality for analysis.
- Conducted exploratory data analysis (EDA) on historical market data, identifying trends, patterns, and correlations, resulting in a 15% increase in portfolio performance.
- Developed and maintained 15+ interactive dashboards and reports using Tableau, allowing stakeholders to visualize investment performance metrics and key indicators in real-time.

Skills: Data Collection, Data Cleaning, Data Integrity and Quality Assurance, Exploratory Data Analysis (EDA), Trend Identification, Pattern Recognition, Interactive Dashboard Development, Tableau

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Freelancer.com   **Jakarta, Indonesia**
Computational Fluid Dynamics Engineer   *January 2021 - May 2023*

- Achieved an average cost reduction of 30% by using open-source CFD meshing platforms compared to commercial alternatives.
- Collaborated with 10+ clients to define and achieve simulation objectives, delivering solutions that met or exceeded expectations within budget constraints.
- Utilized AutoCAD and IoT integration to enhance simulation accuracy by 20%, optimizing project outcomes.

Skills: Microsoft PowerPoint · Thermal Analysis · Formulation · Creative Problem Solving · AutoCAD · Internet of Things (IoT) · OpenFOAM

Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR)   **Bandung, Indonesia**
Computational Fluid Dynamics Engineer   *December 2018 - May 2019*

- Conducted modeling, simulation, and remodeling of various projects, focusing on observance of airflow, heat transfer, and plume smoke behaviors within the context of warehouse calorimetry.
- Forecasted smoke dispersion in PUSKIM's residential vicinity and classified safety levels related to wind velocity and ambient temperature around the structure.

Skills: Analytical Skills · Microsoft PowerPoint · Grasshopper,Creative Problem Solving · Internet of Things (IoT) · OpenFOAM

Kinerja Bangunan Indonesia   **Bandung, Indonesia**
Computational Fluid Dynamics Engineer   *April 2018 - November 2018*

- Modeled, simulated, and remodeled multiple projects by identifying the behavior of the airflow and heat flow comfort of the Kulongprogo Airport and the balcony of the plaza in Jakarta.
- Saving around 5 million rupiah for using >2 million of hex-meshing to compute the model and predict the speed comfort on ground level building.

Skills: Analytical Skills · Microsoft PowerPoint · Formulation · Creative Problem Solving · Internet of Things (IoT) · OpenFOAM

JOB RELATED PROJECTS

Overview: *Data Science Projects:* Involved comprehensive data analysis and machine learning to optimize market trading decisions for INALUM and developed NLP-based systems to improve legal document management for Mahkamah Agung. *CFD Projects:* Focused on simulating airflow, smoke dispersion, and wind comfort to enhance urban design, safety, and comfort in various projects, demonstrating a strong expertise in computational fluid dynamics.

Data Science Projects:

1. **Market Analysis with INALUM:**
   - Conducted comprehensive data analysis on aluminum market trends, including price fluctuations, demand-supply dynamics, and competitor analysis.
   - Utilized advanced statistical methods and machine learning techniques to identify patterns and predict future market behavior.
   - Collaborated with INALUM stakeholders to develop actionable insights and strategies for optimizing trading decisions.
2. **Legal Document Entity Recognition:**
   - Worked closely with Mahkamah Agung to design and implement a system for entity recognition in legal documents, including case titles, parties involved, and key legal terms.
   - Utilized natural language processing (NLP) techniques, such as named entity recognition (NER) and text classification, to extract relevant information from legal texts.
   - Developed algorithms to automate the summarization of legal documents, providing concise summaries for improved accessibility and efficiency in legal research.

CFD Projects

1. **Airflow Modelling in Urban Areas for Plaza Kulongprogo:**
   - Conducted airflow simulations to optimize urban comfort and energy efficiency.
   - Analyzed and modeled airflow patterns to recommend design modifications.
2. **Calorimetry Smoke Flow in Puslitbang:**
   - Simulated smoke dispersion in warehouse settings to enhance safety protocols.
   - Developed models to predict smoke behavior under various conditions.
3. **Wind Comfort for Urban Level Residence Around Puslitbang:**
   - Assessed wind comfort and safety for residential areas.
   - Used CFD to simulate wind flow and recommend improvements for urban planning.

PROJECTS

Airline Passengers' Satisfaction Prediction [Deploy]   *July 2023*
Developed a machine learning model to predict airline passengers' satisfaction based on historical passenger data. Achieved 91% accuracy after data cleaning, feature engineering, and deploying with Streamlit for an interactive interface.
Technology / Tools: Python, Pandas, NumPy, Seaborn, Matplotlib, Scikit-Learn, TensorFlow, Keras, Streamlit.
Global Suicide Rate Analysis[Visualisation]   *June 2023*
Conducted an analysis of global suicide rates using various visualization techniques to identify trends and correlations. Created interactive dashboards in Tableau to communicate the results effectively to stakeholders
Technology / Tools: Tableau, Python, Pandas, Numpy, Seaborn, Matplotlib, Scikit-Learn, Statsmodels, studiolooker.

Feedback Sentiment Analysis integrated with AI [Deploy]   *February 2024*
Developed algorithms using natural language processing and deep learning models for Feedback Sentiment Analysis integrated with AI
Technology / Tools: Python, Pandas, NumPy, Seaborn, Matplotlib, Scikit-Learn, TensorFlow, Keras, Streamlit.

Emotion Computer Vision [Deploy]   *November 2023*
Developed a computer vision model to detect emotions in facial expressions, focusing on identifying whether a person appears sad or happy. The project involved training a convolutional neural network (CNN) on a large dataset of facial images, with features like smile detection and eye shape used to determine emotional states.
Technology / Tools: Python, Pandas, NumPy, Seaborn, Matplotlib, SciPy, Scikit-Learn, Feature-Engine, TensorFlow, Keras, Streamlit.

CERTIFICATION

TheForage

The BCG Data Science Virtual Experience Program
Certificate: BGG Data Science Certificate

British Airways Data Science Virtual Experience Program
Issued on September 2023
Certificate: BA Data Science Certificate

Accenture North America Data Analytics And Visualization
Issued on September2023
Certificate: DA Data Science Certificate

Udemy

Data Science and Machine Learning Basic to Advanced
Issued on February, 2024
Certificate: Data Science and Machine Learning Basic to Advanced Course

Spotfire-The Complete TIBCO Spotfire Course
Issued on December, 2023
Certificate: Spotfire-The Complete TIBCO Spotfire Course

Computer Vision Fundamentals
Issued on February 2024
Certificate: Computer Vision Fundamentals

HackerRank

Python (Basic)
Issued on August 2023
Certificate: Python (Basic) Certificate

SQL (Advanced)
Issued on April 2024
Certificate: SQL (Advanced) Certificate

Problem Solving (Intermediate)
Issued on April 2024
Certificate: Problem Solving (Intermediate) Certificate