

Teo Yu Jie

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Summary —

- Data Scientist specializing in machine learning, statistical analysis, and computational modeling for engineering systems.
- Experienced in developing ML algorithms, data pipelines, and statistical models for complex engineering and scientific applications.
- Skilled in deep learning, probabilistic modeling, and data-driven optimization, achieving 99.5% performance improvements through advanced analytics.

Skills

Machine Learning	PyTorch, tinygrad, NumPy, SciPy, pandas, GANs, decision trees, deep learning
Statistical Analysis	Probability theory, information theory, Bayesian methods, statistical modeling
Programming	Python, C, MATLAB, Mathematica, statistical computing
Data Engineering	Data pipelines, data visualization, feature engineering, model deployment
Computational Methods	Monte Carlo simulation, Markov chains, measure-theoretic probability
Systems	Linux, Gentoo, OpenBSD, Fedora
Soft Skills	Cross-disciplinary collaboration, technical communication, systems thinking

Experience

ST Engineering

Jan 2024 – Present

Data Scientist (Machine Learning, Statistical Analysis)

- Implemented backpropagation-based sensitivity analysis using neural networks to identify critical parameters in engineering models, enabling data-driven design optimization.
- Applied decision tree learning and ensemble methods to evaluate design parameters and their interactions, guiding experimental design and model simplification.
- Developed automated statistical analysis workflows, reducing engineering analysis time from several months to 1 week through ML-driven automation.
- Led cross-functional technical discussions to integrate data science solutions into engineering design processes for competitive programs.

Advanced Micro Devices ("AMD")

Jan 2023 – May 2023

Data Scientist and Machine Learning Engineer

- Built generative adversarial network (GAN)-based surrogate models using PyTorch for complex engineering simulations, achieving 99.5% runtime reduction.
- Developed end-to-end ML pipelines integrating finite element simulations with deep learning workflows, saving over 300 man-hours through automated data processing.
- Implemented statistical validation frameworks and experimental design methodologies using advanced computational methods.

Education

Nanyang Technological University, Singapore

Aerospace Engineering

Specialisation in Mechanical Engineering, Honours (Highest Distinction), Accelerated Bachelor's

Technical Competencies

- **Deep Learning:** Neural networks, GANs, transfer learning, model optimization, hyperparameter tuning
- **Statistical Modeling:** Bayesian inference, time series analysis, regression analysis, hypothesis testing
- **Data Science:** Feature engineering, model validation, statistical significance testing, reproducible research
- **Computational Statistics:** Monte Carlo methods, stochastic processes, probabilistic modeling, information theory