

## Salman A. Farisi (陳成文; Cheng-Wen Chen)

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### Education

#### The University of Edinburgh

PhD, Astronomy. Supervisor: Sergey Koposov

Research: Probing Andromeda dark matter halo with Dark Energy Spectroscopic Instrument (DESI) with high-performance data analytics.

Edinburgh, United Kingdom

Incoming December 2026

#### National Tsing Hua University (NTHU)

MSc, Astronomy. 4.25/4.30. Supervisor: Andrew P. Cooper

Research: Analyzing Milky Way halo substructure with Dark Energy Spectroscopic Instrument (DESI) with HPC numerical simulation and bayesian learning.

Hsinchu, Taiwan

September 2024 – June 2026

#### Bandung Institute of Technology (ITB)

BSc, Astronomy. 3.03/4.00. Supervisor: M. Ikbāl Arifyanto

Research: Application of Convolutional Neural Network for SDSS Apogee spectra to determine effective temperature, surface gravity, and metallicity

Bandung, Indonesia

September 2016 – October 2020

Summer School: Machine Learning Summer School 2020 (University of Amsterdam & Telkom University)

### Research Experience

#### National Tsing Hua University

##### Graduate Research Assistant

Hsinchu, Taiwan

September 2024 – present

- Simulated tidal disruption and stellar-stream formation for 165 globular clusters using restricted N-body methods, identifying 24 systems within the DESI footprint for stream-candidate follow-up.
- Investigated the origin of LMS-1 and the possible merger-driven association of NGC 5053 and NGC 5024 using intensive N-body simulations and Gaussian Mixture Models (GMMs)
- Accelerated post-processing and DESI survey selection by 50% by replacing manual dataframe loading with multithreaded pooling and SLURM setup optimization
- Built a LangChain-based retrieval-augmented generation (RAG) pipeline for scientific literature search, improving retrieval of relevant papers for research workflows

#### National Taiwan University

##### Research Intern (NCTS summer program)

Taipei, Taiwan

July 2025 – August 2025

- Developed the particle heating module in the GAMER framework as a GPU-enabled hydrodynamics simulation, enabling flexible integration of fuzzy dark matter fluctuation effects into various simulations
- Evaluated the lower-bound axion mass hypothesis for fuzzy dark matter from stellar stream model, with preliminary results supporting a characteristic scale of  $1 \times 10^{-21}$  eV

### Industrial Experience

#### Microsec

##### Software Developer

Singapore company; Remote from Jakarta, Indonesia

January 2023 – April 2024

- Researched and prototyped post-quantum cryptography PKI for maritime vehicle, strengthening key lifecycle management and trust architecture for high-assurance deployments
- Developed an IoT network anomaly and intrusion detection ML agent achieving 99% accuracy and packaged the service with Docker to standardize deployment across environments, preventing threat from IoT devices
- Coordinated development of a production Key Management System (KMS) supporting 30+ key type and algorithm combinations, including key rotation, access control, and auditability requirements
- Performed black-box, white-box, and gray-box penetration testing to identify security weaknesses for 4 microservices

#### Allure AI

##### Chief Data Officer (CDO) & Interim CTO (Co-founder)

Jakarta, Indonesia

October 2020 – January 2023

- Co-founded an AI startup after winning an Intel hackathon and helped secure seed funding within 6 months, leading end-to-end data and ML platform development from MVP to production
- Built a personalized skincare recommendation engine for 300,000 users using embedding/vector search, message-broker

pipelines, and user skin-condition signals

- Developed in-browser makeup try-on with NextJS by utilizing device GPU, saving 100% cost for model inference
- Developed a production computer vision skin analyzer with 85% precision for acne, wrinkles, and related skin concerns through iterative labeling, evaluation, and deployment readiness workflows
- Established privacy-preserving image data workflows with de-identification, anonymization, and governed access controls for sensitive user data for 6 Indonesia major skincare retail brands
- Optimized ML infrastructure and cloud operations, cutting cloud costs by 80% and delivery time by 50% through standardized deployment and scalable data-processing pipelines in AWS

### Publication

Yusuf, H. L., Thias, A. H., **Farisi, S.**, et al. (2018). Dago Hoogeschool dalam Kontes Robot Sepak Bola Indonesia Humanoid 2018 [**Dago Hoogeschool in Indonesian Humanoid Soccer Robot Contest 2018**]. Proceedings of the 6th Indonesian Symposium on Robotics Systems and Control (ISRSC) (pp. 171–175).

### Award

Top 5 Swiss Innovation Challenge Asia Indonesia 2021

August 2021

Second prize of Intel OpenVINO Computer Vision Hackathon

December 2020

Final participant of National University of Singapore (NUS) Hack&Roll hackathon 2020

January 2020

Third prize in the National Robotics Competition–Humanoid division 2018

July 2018

### Skill

**Parallel/distributed computing:** MPI, PyTorch DDP, Ray

**Fullstack Software development:** NodeJS, AngularJS, NodeJS, NextJS

**Machine learning paradigm:** deep learning, NLP, LLM, feature engineering, recommendation system, regression, classification, clustering, segmentation, object detection, RAG, agentic AI, chatbot, AI code assistant

**Machine learning frameworks:** Pytorch, Tensorflow, ONNX, Langchain, LlamaIndex, Ollama, OpenAI, Hugging Face, Google Vertex, Spacy, Ultralytics, ChatGPT, Claude, Github Copilot, JAX

**Databases and message brokers:** Redis, MilvusDB, Pinecone, Postgresql, MongoDB, Kafka, Apache Spark, RabbitMQ

**DevOps frameworks:** Kubernetes, Docker, Jenkins, Grafana, Prometheus, Gitlab CI/CD

**Cloud services:** Google Cloud Platform (GCP), Amazon Web Services (AWS), Alibaba Cloud, Microsoft Azure

**Programming languages:** Python, C++, JavaScript, Typescript, Go

### Languages

Bahasa Indonesia: Native proficiency

English: Proficient user. CEFR level C1

Bahasa Melayu: Professional working proficiency

Japanese: Limited working proficiency

Mandarin Chinese: Limited working proficiency

Cantonese Chinese: Elementary proficiency

German: Elementary proficiency