

Ghany Hanifan Muslim

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A decision science consultant with a strong foundation in theoretical physics and financial engineering, Ghany specializes in translating complex business problems into rigorous, solvable mathematical models. With 4+ years in optimization-focused consulting, he has delivered solutions across manufacturing, logistics, supply chain, and workforce planning. Experienced working directly with clients across the full engagement cycle, from requirements gathering to solution delivery. Beyond model building, he has contributed to strategic supply chain engagements including whitepaper and roadmapping work, and holds a growing interest in supply chain resilience and how optimization can support better decision-making under uncertainty.

EXPERIENCES

Tech Lead – Data Analytics

Oct 2025 – Mar 2026

PT Edu Media Digital, Indonesia (www.eduvizta.com)

- Led a data analytics team delivering machine learning, optimization, and LLM-based solutions for the education sector.
- Directed development of predictive models for student performance and credit risk, and optimization models for class scheduling and lecturer assignment.
- Directed development of LLM-based prototypes: a Text-to-SQL chatbot for data retrieval and a RAG-based chatbot for regulation queries.
- Mentored team members in both technical execution and client-facing consulting skills.

Data Scientist

Mar 2022 – Apr 2026

Integrated Decision Systems Consultancy Pte Ltd, Singapore (www.idsc.com.sg)

- Delivered end-to-end decision science solutions for clients across multiple industries — spanning descriptive, diagnostic, predictive, and prescriptive analytics.
- Developed a systematic forecasting framework covering time series profiling, change point detection, predictability scoring, and lost sales estimation to improve forecast reliability across client engagements.
- Built and solved optimization models using Gurobi and Google OR-Tools to address complex operational and planning problems.
- Contributed to client-facing engagements including requirements gathering, solution presentation, and proof-of-concept delivery.

Research Assistant

Aug 2019 – Dec 2021

Institut Teknologi Bandung, Indonesia (www.itb.ac.id)

- Conducted research on “The Einstein-Scalar Field System with spatial topology S^3 ” under the High Energy Theoretical Research Group.

Data Analyst

Dec 2017 – Jul 2018

PT Bahana Sekuritas, Indonesia (www.bahanasekuritas.id)

- Evaluated the execution performance of algo-trading systems to reduce transaction costs.
- Modeled price evolution and market impact to determine optimal order execution strategies.
- Built machine learning models using Limit Order Book data to predict short-term stock price movements.

EDUCATION

Master of Science in Financial Engineering

Aug 2016 – Jun 2017

Nanyang Technological University – Singapore

Bachelor of Science in Physics

Aug 2011 – Jul 2015

Institut Teknologi Bandung – Indonesia

AWARD & CERTIFICATION

- **Passed CFA Level II Exam** – CFA Institute (2019)
- **Certificate in Computational Finance** – Carnegie Mellon University, USA (2017)
- **LPDP Scholarship Awardee** (2015)

TECHNICAL SKILLS

Operation Research: Gurobi, Google OR-Tools, Linear Programming, Integer Programming, Network Optimization

Machine Learning & Analytics: Python, Pandas, Scikit-learn, TensorFlow, Statistical Modeling

Industry Experience: Manufacturing, Logistics, Supply Chain, Aerospace & Defense, Education, Security Services, Financial Services

Familiar with: Metaheuristics, Robust Optimization, Stochastic Optimization, Multi-Objective Optimization

SELECTED PROJECTS

- **Production Scheduling Optimization** – Manufacturing Company
 - Adapted an optimization model from a research partner to coordinate raw materials, work-in-progress, and finished goods flow, spanning 35 products, 2,000+ raw materials, and a multi-level BOM, incorporating production rates, manpower constraints, and procurement planning over a 24-week daily planning horizon.
 - Solved using Gurobi and Google OR-Tools across multiple planning scenarios, with solve times reaching approximately 2.7 hours, reflecting the complexity of the daily-resolution MIP formulation.
 - Contributed to data preparation and formulated a robust optimization extension to improve supply chain resilience against external disruptions
- **Fleet Routing Optimization** – International Freight Forwarder
 - Maintained and improved a routing optimization system for a B2B logistics provider handling 57 vehicles and 1,000+ jobs on peak days across Singapore, comprising an anticipatory job forecasting engine, static routing, and dynamic routing components.
 - Refactored codebase to resolve bugs and improve code quality, supporting the project's progression toward implementation.
 - The problem involved vehicle capacity, separate pickup and delivery jobs, and time windows from a single depot. The static engine solved the base plan covering ~80% of daily jobs in 30 minutes to over an hour, while the dynamic engine re-optimized every 5 minutes for new jobs within 1-2 minutes.
- **Workforce Planning for Airport Security** – Security Services Company
 - Part of a broader decision science engagement for airport security operations at a major international airport in Australia, improving existing lane planning and shift planning capabilities while introducing absenteeism prediction as a new analytical layer.
 - Developed a lane planning model using a dynamical systems approach, simulating passenger queue build-up over time at 5-minute intervals to determine the optimal number of lanes to open across 17 available lanes, improving on the client's snapshot-based method which could not capture queue accumulation effects.
 - Formulated a base shift planning optimization model reducing shifts from 13 manual to 10 optimized, solved using Gurobi with solve times exceeding 1,500 seconds, a problem OR-Tools could only partially handle.
 - Contributed to data preparation and explored multiple modeling approaches including queuing theory and machine learning to evaluate lane planning alternatives.
- **Train Loading Optimization** – Third-Party Logistics (3PL) provider
 - Developed a short-term forecasting model using LightGBM to predict container volumes two days ahead, covering 48 destination-size-type combinations across 4 customer tiers, informing capacity planning decisions such as locomotive allocation and train service adjustments.
 - Conducted data analysis across the project to support both forecasting and optimization workstreams, covering 4 train services with up to 34 wagons each across a 4-week live shadow trial.
 - Mentored a junior engineer in adapting an existing optimization model to fit the client's operational constraints, contributing to a solution that achieved more than 4% profit yield improvement, meeting the KPI threshold for full implementation.