Ahmed T. Hammad

Senior Data Scientist | Causal Inference & Experimentation | Applied ML

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PROFESSIONAL SUMMARY

PhD-level Data Scientist with 10+ years of combined industry and research experience, specialising in causal machine learning, experimentation design, and probabilistic modelling. Deep expertise in A/B testing, treatment effect estimation, and uplift modelling, grounded in doctoral research and applied across healthcare, environmental, and financial consulting engagements. Proven track record of translating complex statistical methods into production-ready systems that drive real business decisions. Published in top-tier journals (PNAS, PLOS One, Science of the Total Environment). Author of seven published open source libraries. Fluent communicator with a record of upskilling 200+ professionals across international cohorts.

CORE SKILLS

Causal ML	Causal inference, RCT & experiment design, uplift modelling, treatment effect estimation, quasi-experiments
ML & Stats	Supervised/unsupervised learning, probabilistic modelling, copulas, bandit algorithms, time series, XAI
NLP & LLMs	Text classification, RAG pipelines, prompt engineering
Languages	Python, R, SQL, PySpark, Stata
Tools	scikit-learn, TensorFlow, H2O, MLflow, Darts, FastAPI, Docker, DuckDB, Redis, GCP, Streamlit
Domains	Fintech, healthcare AI, environmental data, policy evaluation
Languages	English (fluent), Italian (native), Arabic (native), Indonesian (basic)

PROFESSIONAL EXPERIENCE

Data Science Consultant | *Green Heart Care, Australia* May 2025

- Designed and oversaw delivery of a production NLP system that automatically summarises daily caregiver notes and flags health or behavioural anomalies, now in active daily use by the care team.
- Advised on NLP model selection, data pipeline architecture, and performance evaluation for multi-class text classification.
- Established data governance standards and ethical AI guidelines for sensitive healthcare data handling.

Lead Data Science Lecturer | *Le Wagon, Singapore & Bali* Apr 2022 to Present

- Delivered intensive applied data science and ML programmes to 200+ international students across multiple cohorts. Consistently ranked top one or two across the global Le Wagon instructor network on student evaluations.
- Led a two-week enterprise data science intensive for 30+ professionals at SLB (Schlumberger) as part of a three-year, 500-person workforce transformation programme.
- Full curriculum spans Python, SQL, supervised and unsupervised learning, deep learning, NLP, LLMs, cloud infrastructure, and production ML delivery from raw data through to deployed systems.

Guest Editor | *IOP Publishing, Environmental Research: Infrastructure & Sustainability* Sep 2024 to Feb 2025

- Coordinated peer review and editorial direction for a focus issue on geospatial and data-driven methods for climate resilience and infrastructure impact assessment.

Data Science Consultant | *PT. Mantra Bali, Indonesia* Apr 2020 to Apr 2021

- Built and piloted a computer vision system for real-time quantification of landfill waste volumes, designing the end-to-end ML pipeline from image capture through model inference and reporting under severe cost constraints.

Data Science Consultant | *Simile, Timor-Leste* Feb 2020 to Jan 2021

- Developed predictive models for climate-induced early warning systems in collaboration with NGOs, building geospatial alert pipelines integrating satellite and sensor data for real-time risk signalling.

Data Science Consultant | *Tripper, Indonesia* Jul 2019 to Aug 2019

- Designed crop-yield prediction models using remote sensing and time-series data to support agricultural pricing and planning decisions for smallholder farmers.

Research & Fieldwork Manager | *Catholic University of the Sacred Heart & Ipsos, Milan* 2013 to 2018

- Led quantitative research and programme evaluation projects at national scale, managing fieldwork teams across multiple Italian regions.
- Designed randomised controlled trial (RCT) experiments and survey instruments; oversaw data collection for studies covering 10,000+ respondents.

OPEN SOURCE LIBRARIES

onlinecml	*Python*	Streaming causal inference library.
argenta	*Python*	Warehouse-native experiment analysis for Snowflake, BigQuery, and Redshift. Applies CUPED, Causal Forest, and sequential testing inside the warehouse.
pygcapi/ rgcapi	*Python/R*	Python and R library interfacing with the Gain Capital API for automated trading account management and strategy execution on Forex.com.
syntCF	*R*	Causal effect estimator combining synthetic control with ML for programme and policy evaluation.
pbox	*R*	Probabilistic risk assessment tool for computing marginal, joint, and conditional probabilities across correlated variables.

EDUCATION

PhD, Causal Machine Learning | *Catholic University of the Sacred Heart, Milan* 2018 to 2022

Thesis: Causal Machine Learning for Program and Policy Evaluation — application of ML techniques to causal inference, addressing limitations of traditional econometric models.

Visiting Researcher | *University of Leeds, UK* Nov 2018 to Apr 2019

Developed a web-based analytical framework integrating socio-demographic data with electronic petition records for political science research.

MSc, Sociology and Social Research | *University of Trento, Italy* 2015 to 2017

Thesis: Applied modern mediation analysis to estimate indirect effects of healthcare access using experimental data (Oregon Health Insurance Experiment).

BSc, Sociology | *University of Milan-Bicocca, Italy* 2010 to 2014

Thesis: Assessed effects of Family Group Conference programme on student well-being through randomised evaluation.

SELECTED PUBLICATIONS

Falchetta, G. & Hammad, A.T. (2025). Tracking green space along streets of world cities. Environmental Research: Infrastructure and Sustainability.

Shayegh, S. et al., incl. Hammad, A.T. (2023). Prioritizing COVID-19 vaccine allocation: an AI-enabled geospatial decision-support framework. PLOS One.

Hammad, A.T. & Falchetta, G. (2022). Probabilistic forecasting of cropland vegetation health. Science of the Total Environment.

Falchetta, G., Hammad, A.T. & Shayegh, S. (2020). Planning universal accessibility to public healthcare in sub-Saharan Africa. PNAS. [Featured in Medical Xpress]