Francesco D'Angolo

Master of Science Computer Science & Data Science | Specializing in ML, Optimization & Causal Inference

+1 (312) 2215145 | dangolofrancesco@gmail.com | Chicago, IL | Linkedin | Github

Education

University of Illinois Chicago **Chicago, IL, USA**

Master of Science Computer Science - Double Degree with Politecnico di Torino - GPA: 3.7/4.0 *Expected: Dec. 2026*

- **Relevant Coursework:** Causal Inference and Learning, Natural Language Processing, Mechanism Design.

Politecnico di Torino **Turin, Italy**

Master of Science Data Science and Engineering *Expected: Dec. 2026*

- **Relevant Coursework:** Statistics and Algebra for ML, Distributed Architectures, ML and Deep Learning, Data Management Systems.

Politecnico di Torino **Turin, Italy**

Bachelor of Science Computer Engineering — Final Grade: 107/110 *Oct. 2021 – July 2024*

Technical Skills

Languages: Python, C/C++, SQL, R, MATLAB, Bash
ML & Frameworks: PyTorch, Scikit-Learn
Data & Infrastructure: Pandas, NumPy, Spark, Hadoop, Docker, Git, Tableau, Linux (Ubuntu)
Specialized: Causal Inference, Integer Programming, Mechanism Design, Statistical Modeling

Experience

Graduate Research Assistant **Chicago, IL, USA**

University of Illinois Chicago *Jan. 2026 – Present*

- Conducting research on mechanism design for carbon-aware cloud computing under Prof. Ian Kash, developing stochastic optimization models for cloud spot instance allocation under real-time electricity pricing.

Data Science Intern **Turin, Italy**

Hitachi Rail *March 2024 – June 2024*

- Developed integer programming optimization model for automated transit scheduling on Turin metro system (200K+ daily passengers), increasing operator revenue by 7% through dynamic supply-demand matching
- Built ensemble demand forecasting pipeline (XGBoost, LightGBM) to predict peak-hour passenger flow, reducing average wait times by 18% through improved demand prediction.
- Implemented constrained resource allocation algorithm for real-time vehicle frequency optimization, reducing operational costs and carbon emissions by 10%

Projects

Causal Inference in Human-AI Interaction | *Python, Scikit-Learn* **Github**

- Estimated the causal effect of LLM empathy on user attachment using double robust learning and semantic matching techniques.
- Built an LLM-as-a-Judge scoring pipeline (Mistral-Small), identifying a statistically significant ATE of 0.77 while controlling for high-dimensional textual confounders and analyzing heterogeneous treatment effects.

NLP Reproducibility Study: Conflicting Contexts in QA | *Python, PyTorch* **Github**

- Evaluated Large Language Models' (LLMs) robustness against conflicting retrieved contexts by fine-tuning Flan-T5 using LoRA (Low-Rank Adaptation) and a grid-search hyperparameter pipeline.
- Identified model-scale boundary condition: explanation-based fine-tuning improves performance in large models ($> 3B$ params) but degrades results in smaller architectures

Egocentric Video NLQ | *Python, PyTorch, Computer Vision* **Github**

- Implemented temporal segment localization in egocentric videos (Ego4D dataset) by training VSLBase and VSLNet models on multi-modal features (Omnivore, EgoVLP).
- Extended the pipeline by integrating Video-LLaVA to enable automated visual question answering on retrieved video segments.