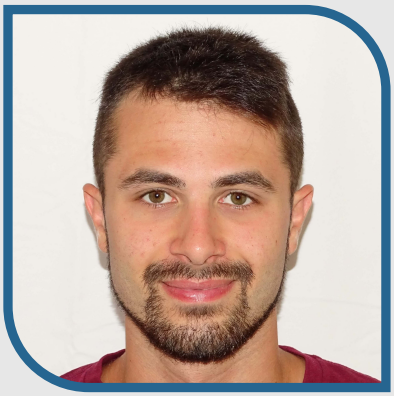

Federico Berto

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About Me

I am a PhD student in the Industrial and Systems Engineering department at KAIST, where I am fortunate to be advised by Prof. Jinkyoo Park in the Systems Intelligence Lab (SILAB🔗).
My main research interest is applied deep learning, such as decision-making in discrete and continuous spaces. I have recently been working in mainly two areas: neural combinatorial optimization (NCO) and scientific machine learning (AI4Science).
I love to work on open-source projects. I recently co-founded the AI4CO🔗 open research group and collaborate with DiffEqML🔗.

Education

2022-2025 **PhD Student** KAIST, South Korea
PhD student in Industrial and Systems Engineering focusing on applied research in deep learning: neural combinatorial optimization and scientific machine learning.

2020-2022 **Master's Degree** KAIST, South Korea
MSc in Industrial Engineering. Thesis on deep learning for decision-making in continuous dynamical systems.

2017-2020 **Double Bachelor's Degree** Tongji University, China
BSc in Automation Engineering and member of the Almatong program.

2016-2019 **Bachelor's Degree** University of Bologna, Italy
Undergraduate studies in Automation Engineering focusing on control of dynamical systems.

Research

2023 **Efficiently Solving Min-Max Routing Problems via Parallel Autoregressive Policies**
F Berto, C Hua*, J Park, J Park*
AAMAS 2024 (*under review*)

RL4CO: a Unified Reinforcement Learning for Combinatorial Optimization Library
F Berto, C Hua*, J Park*, M Kim, H Kim, J Son, H Kim, J Kim, J Park*
NeurIPS 2023 GLFrontiers Workshop (Oral)

Learning Efficient Surrogate Dynamic Models with Graph Spline Networks
C Hua, F Berto*, M Poli, S Massaroli, J Park*
NeurIPS 2023 (previously Oral in ICML AI4Science WS)

Bootstrapped Training of Score-Conditioned Generator for Offline Design of Biological Sequences
M Kim, F Berto, S Ahn, J Park
NeurIPS 2023

DevFormer: A Symmetric Transformer for Context-Aware Device Placement
H Kim, M Kim*, F Berto, J Kim, J Park*
ICML 2023

2022 **Transform Once: Efficient Operator Learning in Frequency Domain**
M Poli, S Massaroli*, F Berto*, J Park, T Dao, C Ré, S Ermon*
NeurIPS 2022

Meta-SysId: A Meta-Learning Approach for Simultaneous Identification and Prediction
J Park, F Berto, A Jamgochian, MJ Kochenderfer, J Park
arXiv preprint arXiv:2206.00694

Neural Solvers for Fast and Accurate Numerical Optimal Control
F Berto, M Poli, S Massaroli, J Park
ICLR 2022 (previously Spotlight in NeurIPS DLDE WS)

Federico Berto

Graduate Student

Languages

- Italian ●●●●●
- English ●●●●○
- Chinese ●●○○○
- Spanish ●●○○○
- Korean ●○○○○

Software Skills

- Python ●●●●○
  - PyTorch library
  - Open-source contributor to related projects
- Linux ●●●●○
  - Daily user
  - Server management
- C ●●●○○
  - Arduino and ESP8266
  - Interfacing to HomeAssistant

Core Soft Skills

Problem solving | Adaptability | Teamwork | Motivation | Leadership | Active listening

Working Experience

2021-now **Researcher** KAIST SILab, South Korea
Currently focusing on the intersection of deep learning and dynamical systems and working on novel differential equation solvers.

2021-now **Internship Student** Daewoong Pharmaceuticals
AI and Big Data research internship on the study and optimization of pharmaceutical production processes.

2019-2020 **Internship** COMAU Robotics, China
Assistant in designing automated engine assembly lines from the FCA group.

2015-2020 **Private Teacher** Self-employed, Italy
Private lessons for high school and university students in subjects including Physics, Maths, and Latin.

2013-2017 **Volunteering Work** ODAR Belluno, Italy
Children entertainer and helping in charity venues for disabled people.

Prizes and Achievements

currently **KAIST International Scholarship** South Korea
Full-tuition scholarship and monthly stipend for academic achievements in Engineering.

currently **Daewoong Foundation AI and Big Data Scholarship** South Korea
Monthly allowance granted based on merit and a coding test.

2022 **ICML 2022 Outstanding Reviewer** Online
Job as peer reviewer for the International Conference of Machine Learning (Top 10%).

2017 **Almatong Program** China
Award of full scholarship based on academic merits and yearly allowance for a double BSc program with Tongji University.

Licenses and Certificates

English	IELTS level 8.0 certification holder
Chinese	Chinese HSK level 3 certification holder
Driving Licenses	Holder of three different driving licenses from Italy, China and South Korea

Extra-Curricular Activities

Traveler	Daring trying out new experiences and fond of culture exchanges
Tech Nerd	Always looking for the latest developments and trends
Open Source Contributor	I like doing stuff. Sometimes about research, others just for fun - from helper tools to making bots for reserving trains in South Korea. Combining fun and research is my Pareto-optimal choice
Hiker	Multi-day trekking routes lover