



# Federico Berto

Graduate Student

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## Social Networks —

- Website: fedebotu.github.io
- Github Profile: fedebotu
- Linkedin Profile: federicoberto
- Twitter Profile: fedebotu
- Slack Workspace: AI4CO

## 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 am a founder of the AI4CO open research group and collaborate with DiffE-qML.

## 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 Univ., China; Univ. of Bologna, Italy  
Double BSc in Automation Engineering and member of the Almatong program.


## Research


- 2024 **PARCO: Parallel Autoregressive Policies for Efficient Multi-Agent Combinatorial Optimization**  
*F Berto\*, C Hua\*, J Park, K Ahn, C Kwon, J Park*  
(submitted to KDD 2024)
- Ensembling Prioritized Hybrid Policies for Multi-agent Pathfinding**  
*H Tang\*, F Berto\*, J Park*  
(submitted to IROS 2024)
- 2023 **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


## Software Skills


 Python


 PyTorch library





 Linux


 Daily user





 C







 Programming with AI








## Languages

 Italian

 English

 Chinese

 Spanish

 Korean

## Core Soft Skills

Problem solving

Adaptability

Teamwork

Motivation

Leadership

Active listening

## Working Experience

2021-now	<b>Researcher</b> Currently focusing on the intersection of deep learning and dynamical systems and working on novel differential equation solvers.	KAIST SILab, South Korea
2021-now	<b>Internship Student</b> AI and Big Data research internship on the study and optimization of pharmaceutical production processes.	Daewoong Pharmaceuticals
2019-2020	<b>Internship</b> Assistant in designing automated engine assembly lines from the FCA group.	COMAU Robotics, China
2015-2020	<b>Private Teacher</b> Private lessons for high school and university students in subjects including Physics, Maths, and Latin.	Self-employed, Italy
2013-2017	<b>Volunteering Work</b> Children entertainer and helping in charity venues for disabled people.	ODAR Belluno, Italy

## Prizes and Achievements

currently	<b>KAIST International Scholarship</b> Full-tuition scholarship and monthly stipend for academic achievements in Engineering.	South Korea
currently	<b>Daewoong Foundation AI and Big Data Scholarship</b> Monthly allowance granted based on merit and a coding test.	South Korea
2022	<b>ICML 2022 Outstanding Reviewer</b> Job as peer reviewer for the International Conference of Machine Learning (Top 10%).	Online
2017	<b>Almatong Program</b> Award of full scholarship based on academic merits and yearly allowance for a double BSc program with Tongji University.	China

## 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 Hobbies

Traveler	Daring trying out new experiences and fond of culture exchanges
Tech Nerd	Always looking for the latest developments and trends
Hiker	Multi-day trekking routes lover
Open-Source Contributor	Sometimes about research, others just for fun - from RL libraries to bots for reserving train tickets - here🔗 are some examples