Chuanbo Hua
Ph.D. Candidate

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EDUCATION EXPERIENCE

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, Republic of Korea
Ph.D. candidate in Industry and System Engineering — Sep. 2022 ~ Aug. 2025 (Expected)
- Research student in KAIST SILab, supervised by Dr. Jinkyoo Park
- KAIST full scholarship &KAIST special scholarship

Korea Advanced Institute of Science and Technology (KAIST) — Daejeon, Republic of Korea
M.E. in Industry and System Engineering — Sep. 2020 ~ Jul. 2022
- Research student in KAIST SILab, supervised by Dr. Jinkyoo Park
- KAIST full scholarship. GPA: 3.9/4.3

Pohang University of Science and Technology (POSTECH) — Pohang, Republic of Korea
Exchange student in Computer Science Engineering — Sep. 2019 ~ Jan. 2020
- Research intern in POSTECH CV Lab, supervised by Dr. Minsu Cho

Harbin Institute of Technology (HIT) — Harbin, People's Republic of China
B.S. in Information and Computing Science, Mathematics — Sep. 2016 ~ Jul. 2020
- People's scholarship. GPA: 3.4/4.0. Rank: 12/98

WORK EXPERIENCE

Omelet — Daejeon, Republic of Korea
AI scientist intern — June. 2024 ~ Present

Daewoong Fundation — Seoul, Republic of Korea
Machine learning engineering intern — Jan. 2023 ~ Feb. 2023

HUAWEI Technologies Research Center — Nanjing, People's Republic of China
Algorithm engineering intern — Jun. 2019 ~ Aug. 2019

China Huarong Asset Management — Beijing, People's Republic of China
Data engineering intern — Jun. 2018 ~ Sep. 2018

PUBLICATIONS

CAMP: Collaborative Attention Model with Profiles for Vehicle Routing Problems — AAMAS 2025
C Hua*, *F Berto**, *J Son, S Kang, C Kwon, and J Park* — Conference Poster

AoP-SAM: Automation of Prompts for Efficient Segmentation — AAAI 2025
Y Chen, M Son, ***C Hua****, and JY Kim* — Conference Poster

Accelerating Chiplet Placement & Routing Optimization with Machine Learning — DesignCon 2025
H Kim, F Berto, J Lee, H An, T Shin, ***C Hua****, J Park, Y Kim, and J Kim* — Conference Best Paper

Large Language Models as Hyper-Heuristics for Combinatorial Optimization — NeruIPS 2024
H Ye, J Wang, Z Cao, F Berto, ***C Hua****, H Kim, and J Park* — Conference Poster

HiMAP: Learning Heuristics-Informed Policies for Large-Scale Multi-Agent Pathfinding — AAMAS 2024
H Tang, F Berto, Z Ma, ***C Hua****, K Ahn, and J Park* — Conference Poster

Learning Efficient Surrogate Dynamic Models with Graph Spline Networks — NeurIPS 2023
C Hua*, *F Berto**, *M Poli, S Massaroli, and J Park* — Conference Poster

Coagulant dosage determination using deep learning-based graph attention multivariate time series forecasting model — Water Research
S Lin, J Kim, ***C Hua****, MH Park, and S Kang* — Journal

Deep learning-based coagulant dosage prediction for extreme events leveraging large-scale data — JWPE
J Kim, ***C Hua****, S Lin, S Kang, JH Kang, and MH Park* — Journal

Comparing artificial and deep neural network models for prediction of coagulant amount and settled water turbidity: lessons learned from big data in water treatment operations — JWPE
S Lin, J Kim, ***C Hua****, S Kang, and MH Park* — Journal

Optimizing coagulant dosage using deep learning models with large-scale data — Chemosphere
J Kim, ***C Hua****, K Kim, S Lin, G Oh, MH Park, and S Kang* — Journal

Under Review & Preprints

RL4CO: a Unified Reinforcement Learning for Combinatorial Optimization Library — Under Review
F Berto, **C Hua***, J Park*, M Kim, H Kim, J Son, H Kim, J Kim, and J Park* — arXiv preprint

A Unified Learning Model for the Profiled Vehicle Routing Problem — Under Review
C Hua, F Berto*, Z Zhao, J Son, C Kwon, and J Park* — arXiv preprint

PARCO: Learning parallel autoregressive policies for efficient multi-agent combinatorial optimization — Under Review
F Berto, **C Hua***, L Luttmann, J Son, J Park, K Ahn, C Kwon, L Xie, and J Park* — arXiv preprint

Routefinder: Towards foundation models for vehicle routing problems — Under Review
F Berto, **C Hua***, NG Zepeda*, A Hottung, N Wouda, L Lan, K Tierney, and J Park* — arXiv preprint

Neural Combinatorial Optimization for Real-World Routing — Under Review
J Son, Z Zhao*, F Berto, **C Hua**, C Kwon, and J Park* — arXiv preprint

Multi-agent dynamic relational reasoning for social robot navigation — Under Review
J Li, **C Hua***, H Ma, J Park, V Dax, and MJ Kochenderfer* — arXiv preprint

Evolvehypergraph: Group-aware dynamic relational reasoning for trajectory prediction — Under Review
J Li, **C Hua***, J Park, H Ma, V Dax, and MJ Kochenderfer* — arXiv preprint

Workshop

Routefinder: Towards foundation models for vehicle routing problems — ICML 2024
F Berto, **C Hua***, NG Zepeda*, A Hottung, N Wouda, L Lan, K Tierney, and J Park* — Workshop Oral

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

Efficient Continuous Spatio-Temporal Simulation with Graph Spline Networks — ICML 2022
C Hua, F Berto*, M Poli, S Massaroli, and J Park* — Workshop Oral

AWARDS

- 2023, Daewoong AI & Big Data Scholarship
- 2023, KAIST ISysE Research Day Exellent Paper Award
- 2022, Korea Advanced Institute of Science and Technology Special Scholarship
- 2021, **2nd Finalist**, Daewoong Foundation AI & Big Data Hackathon
- 2019, **Second Round Shortlisted**, The 5th Baidu Big Data Competition
- 2018, **Provincial Second Award**, China Undergraduate Mathematical Contest in Modeling (CUMCM)
- 2018, Harbin Institute of Technology Outstanding Student Leader, People's Scholarship

ACADEMIC SERVICE

Reviewer: ICML 2023, 2024, 2025; NeurIPS 2023, 2024, 2025; KDD 2024, 2025; ICLR 2024; AAMAS 2025; IJCAI 2024, RA-L.

ADDITIONAL

- GitHub Link: https://github.com/cbhua
- Personal Page: https://cbhua.github.io

SUMMARY

I am a third-year Ph.D. candidate in the *Indystrial & Systems Engineering* (ISysE) department at *Korea Advanced Institute of Science and Technology* (KAIST). I am doing research with my colleagues at the *Systems Intelligence Laboratory* (SILab) supervised by Prof. Jinkyoo Park. I am a co-founder of the AI4CO open source group and working closely with the DiffEqML open source group.

The primary focus of my ongoing research is the development of *reinforcement learning* (RL) algorithms for the study of *combinatorial optimization* (CO) problems. We create an extensive open-source benchmark RL4CO to provide a unified framework for RL-based CO algorithms. I also explore machine learning methods for dynamical physical system simulation, scientific computing, and trajectory prediction. Recent interests include reinforcement learning for continuous dynamical system control, robot navigation and high efficient complex physical system simulation.