
YANGZHE KONG

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EDUCATION

George Mason University

Aug 2024 – May 2027

Doctor of Philosophy in Computer Science

Overall GPA: 4.0/4.0

Aalto University, Finland

Sept 2019 – Jun 2020

Master of Science (w/ honors) in Computer Science

Overall GPA: 4.32/5

University of Trento, Italy

Sept 2018 – Jun 2020

Master of Science in Info & Comm Engineering

Overall GPA: 28.25/30

Tongji University, China

Sept 2014 – Jun 2018

Bachelor of Engineering in Transportation Info & Control Engineering

Shanghai, China

OBJECTIVES

First-year Master student with 3 years of hands-on expertise in full-stack machine learning, seeking an internship opportunity to apply and expand my skills in a dynamic professional environment.

RESEARCH & WORK EXPERIENCE

George Mason University

Jul 2024 – Current

Graduate Research Assistant

Fairfax, USA

- Developed data annotation protocol and pipeline to annotate existing robot social navigation dataset
- Performed multi-task and multi-modal learning for learning both robotics tasks (trajectory prediction, trajectory planning, etc) and scenario description via generative models such as vision-language models

Huawei Technology Co., Ltd

Nov 2020 – May 2022

Machine Learning Engineer, Full-time

Shenzhen, China

- Test Item Acquisition Algorithm for Semiconductor
 - Designed a meta-heuristics-based algorithm for test item acquisition for semiconductor testing procedure for HiSilicon
 - Reduced the testing time by around 20% with the same level of accuracy
- Vehicle Routing Problem
 - Utilized Lagrangian Relaxation to describe constraints as soft constraints and enhanced meta-heuristics and objective function to optimize the solving algorithm
 - Beat the result from Google OR-Tools by an average of 10% on test scenarios such as capacitated vehicle routing problem, capacitated vehicle routing problem with time window constraints
 - An academic [paper](#) was drafted based on the results of current research ([Github Repo](#))

- Trajectory Prediction
 - Sampled agent motion features from the feature map of U-Net, combining with the traffic information from rasterized HDMap as the input of Target-drivenN Trajectory (TNT) framework
 - Preprocessed the input data from LiDAR: hard data mining with resampling dataset; differentiating hard data from easy cases; and data augmentation to avoid overfitting

Nokia Bell Labs

Jan 2020 – July 2020

Intern, Full-time, Supervisor: Vilho Raisanen, Dmitry Petrov

Espoo, Finland

- Built a novel algorithm that can be used to predict networks' path performance based on link and node features
- Optimized the model structure to achieve better scalability with up to 2x speedup with no accuracy loss in the face of large-scale networks
- Published one academic [paper](#) at *IEEE International Symposium on Integrated Network Management (2021)* based on the research results ([Github Repo](#))

Jidu Automobile Co., Ltd.

Nov 2022 – Jan 2024

Senior Machine Learning Engineer, Full-time

Shanghai, China

- Developed rule-based trajectory prediction algorithms from scratch, such as constant velocity, constant acceleration, constant turning rate and velocity
- Trained and Optimized trajectory prediction models such as LSTM, semantic LSTM, DenseTNT and MTR, on Waymo Open Motion Dataset and private-owned datasets
- Deployed the trained models on Nvidia Orin by TensorRT and ONNX
- Developed basic software framework for prediction module based on Baidu Apollo open-source framework (ROS-based) to serve as a foundation for further algorithm development
- Built a data extraction pipe to prepare data for training and testing
- Discussed with persons in charge of upstream and downstream modules to determine the specifications of the prediction module, such as input variables, output variables, execution time, resource allocation, etc
- Provided mentorship to 2 interns and set step-by-step goals to help them get familiar with algorithm optimization based on case feedback

AutoX

May 2022 – Oct 2022

Machine Learning Engineer, Full-time

Shenzhen, China

- Proposed a new trajectory prediction algorithm by incorporating dynamic models to optimize the current rule-guided algorithm to smooth the vehicle trajectory
- Conducted thorough research and literature review on interaction-aware trajectory prediction models
- Applied reinforcement learning algorithms in planning decisions such as the pull-over spot selection

PUBLICATIONS

- [1] Payandeh, A., Song, D., Nazeri, M., Liang, J., Mukherjee, P., Raj, A. H., **Kong, Y.**, Manocha, D., and Xiao, X. (2024). Social-LLaVA: Enhancing Robot Navigation through Human-Language Reasoning in Social Spaces. *Submitted to ICRA 2025*
- [2] Tang, Q.*, **Kong, Y.***, Pan, L., & Lee, C. (2022). Learning to Solve Soft-Constrained Vehicle Routing Problems with Lagrangian Relaxation. *arXiv preprint arXiv:2207.09860*. <https://arxiv.org/abs/2207.09860>, *equal contribution

- [3] **Kong, Y.,** Petrov, D., Räisänen, V., & Ilin, A. (2021, May). Path-Link Graph Neural Network for IP Network Performance Prediction. In *2021 IFIP/IEEE International Symposium on Integrated Network Management (IM)* (pp. 170-177). IEEE. <https://ieeexplore.ieee.org/abstract/document/9464050>
- [4] **Kong, Y.** (2022). Vehicle behavior prediction method and device, vehicle and storage medium. (*PRC No. CN117922613A*). China National Intellectual Property Admin.
- [5] **Kong, Y.** (2022). Refrigerating Container. (*WIPO Patent No. WO2022137104A1*). The World Intellectual Property Organization.
- [6] **Kong, Y.** (2021). Method and device for acquiring test items of integrated circuit and related equipment. (*PRC Patent No. CN115905643A*). China National Intellectual Property Administration

SKILLS

- Computer vision (Python/C with OpenCV)
- Reinforcement Learning (PyTorch/ Tensorflow)
- Combinatorial Optimization
- Programming (Python, C++, R, MATLAB)
- Robotics (ROS)
- Generative Models (VLMs, LLMs)
- DNN Deployment (TensorRT/ONNX/LibTorch)
- Deep Learning
- Database Management
- Fast learner & system thinking
- Excellent communicator