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| **Jinqi Li**  **Phone:***(+86) 19217710522*  **Mail:** *jinqili@email.cugb.edu.cn* |  |
| **Education Experience** | |
| **Master of Engineering in Computer Science and Technology**  June 2024  **China University of Geoscience (Beijing)**  *Advisor:* **Professor Yunyun Niu**  **Bachelor of Engineering in Computer Science and Technology** June 2021  **China University of Geoscience (Beijing)** | |
| **Research Interests** | |
| * **Deep Reinforcement Learning** * **Learning-based Method for Optimization** | |
| **Publications** | |
| 1. J. Li, B. T. Dai, Y. Niu, J. Xiao, Y. Wu. Multi-Type Attention for Solving Multi-Depot Vehicle Routing Problems. *IEEE Transactions on Intelligent Transportation Systems*, (2024). [Multi-Type Attention for Solving Multi-Depot Vehicle Routing Problems | IEEE Journals & Magazine | IEEE Xplore](https://ieeexplore.ieee.org/document/10568457/) 2. J. Li, Y. Niu, G. Zhu, J. Xiao. Solving Pick-up and Delivery Problems via Deep Reinforcement Learning Based Symmetric Neutral Optimization. *Expert Systems with Applications*, (2024). [Solving pick-up and delivery problems via deep reinforcement learning based symmetric neural optimization - ScienceDirect](https://www.sciencedirect.com/science/article/pii/S0957417424013812) | |
| **Research Experience** | |
| **Graduate Research Assistant**  *School of Information Science, China University of Geoscience in Beijing* **2021 -2024**  **Natural Science Foundation of China (Grant number 61872325)**  **Natural Science Foundation of China (Grant number 62172373)**  **Multi-Type Attention for Solving Multi-Depot Vehicle Routing Problems**   * Proposed a novel DRL policy network for solving multi-depot vehicle routing problem (MDVRP) and multi-depot open vehicle routing problem (MDOVRP), namely MD-MTA, which is the first DRL method to solve MDOVRP. * Proposed a multi-type attention mechanism for handle multi-depots instances, which is able to effectively facilitate the aggregation of various embeddings and the selection of nodes for route construction. * Presented a depot rotation augmentation mechanism, which arms the MD-MTA with an efficient rollout and further enhances the performance in the context of multiple depots.   **Solving Pick-up and Delivery Problems via Deep Reinforcement Learning Based Symmetric Neural Optimization**   * Proposed a novel DRL policy network for solving pick-up and delivery traveling salesman problem (PDTSP) and one-to-one pick-up and delivery traveling salesman problem (m-PDTSP), namely PD-SNO, which is the first DRL method to solve m-PDTSP. * Developed a multi-head symmetric attention mechanism, which is able to capture the relationship between symmetric partitions of instances and construct the solution by gathering the symmetric embeddings with the constantly updated environment. * Designed a multi-query symmetric rollout and a rotational symmetric augmentation-based loss function to effectively train the policy network, which forces the policy network take the multi-trajectories generated by both methods mentioned above into account. * Presented a exchanged augmentation mechanism, which arms the PD-SNO with an efficient rollout and further enhances the performance in the context of symmetric node set (pickup and delivery). | |
| **Honors and Awards** | |
| 1. **The scholarship for graduate student in CUGB 2021-2024** | |
| **Other Information** | |
| **Languages: English (IELTS 7.5)**  **GRE scores: V155+Q170**  **Programming Languages: Python, C++**  **Software: PyTorch, Gurobi, OR-Tools** | |