TONG LU

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EDUCATION

M.S., Industrial Engineering and Management, Shanghai Jiao Tong University **2019-2022(exp.)**
Advisor: Prof. Xinguo Ming

- GPA:3.91/4.0
- Courses: Advanced Operations Research, Advanced Statistics, Mechanical Design Reliability Analysis, Industrial Information Engineering, Error Analysis and Test Data Processing

BEng, Industrial Engineering and Management, Shanghai Jiao Tong University **2015-2019**
Thesis Advisor: Prof. Dongmei Wang

- Overall Score:3.50/4.3
- Courses: Linear Algebra, Probability and Statistics, Logistics and Supply Chain, Operations Research, Production Plan and Control, Engineering Statistics, Management Information System, Service Management

PUBLICATIONS

Tong Lu, Zhao-Hui Sun*, Siqi Qiu, Xinguo Ming, "Time Window Based Genetic Algorithm for Multi-AGVs Conflict-free Path Planning in Automated Container Terminals", IEEE International Conference on Industrial Engineering and Engineering Management (IEEM 2021), *accepted as an oral paper*

Zhao-Hui Sun, Jiapeng You, Siqi Qiu, Edmond Q. Wu, Pengwen Xiong, Aiguo Song, Hanzhong Zhang, **Tong Lu**,"AGV-based Vehicle Transportation in Automated Container Terminals: A Survey", IEEE Transactions on Intelligent Transportation Systems, *under review*

Tong Lu, Zhao-Hui Sun, Xinguo Ming, "A Bi-level Hybrid Heuristic Algorithm for Integrated Scheduling and Conflict-free Routing Problem for AGVs in Automated Container Terminal." *prepare to submit to* IEEE Transactions on Intelligent Transportation Systems

RESEARCH INTERESTS

- Operation Research & Evolutionary Computing
- Smart City & Intelligent Transportation System
- Efficient Resource Allocation & Logistics

My research interests mainly lie in the operations research (OR) with application in real world domains. I would like to see how OR can be properly applied in the intelligent transportation system and shape our future smart city. For specific topics, I am interested in how to optimize resources allocation efficiently, scenarios including port AGV, medical resources, supply chain logistics, etc.

RESEARCH PROJECTS

Integrated scheduling and conflict-free routing for AGVs **Jul. 2021 to present**
Core member, Shanghai Jiao Tong University *Advisor: Prof. Xinguo Ming*

- Considered the AGV routing and scheduling problem as a whole and formulated both problems in one mathematical model. Designed a bi-level hybrid heuristic algorithm to achieve efficient AGV scheduling and conflict-free routing.
- Funded by Shanghai Zhenhua Heavy Industries (ZPMC)

Confilct-free routing for AGVs in automated container terminals (ACT) **Oct. 2020 to Jun. 2021**
Core member, Shanghai Jiao Tong University *Advisor: Prof. Xinguo Ming*

- Proposed a mathematical model of the conflict-free routing problem and developed a time-window-based genetic algorithm which can find conflict-free paths for multi-AGVs in ACT and achieve a shorter makespan.
- Funded by Shanghai Zhenhua Heavy Industries (ZPMC)

Production scheduling for flexible job shop with uncertainty **Mar. 2019 to Jun. 2019**
Core member, Shanghai Jiao Tong University *Advisor: Prof. Ran Liu*

- Constructed the mathematical model of the flexible job shop problem (FJSP) and designed an ant colony algorithm to figure out the production schedule considering the uncertainty that the machine may break down.

Research on the influence of manufacturing station load factors on ergonomic evaluation results based on motion capture system **Dec. 2018 to Jun. 2019**
Core member, Shanghai Jiao Tong University *Advisor: Prof. Dongmei Wang*

- Used the cubic spline interpolation method to process the data collected in experiments, then designed an automatic evaluation method for ergonomics considering the influence of load factors to optimize the old evaluation system.

Optimization of operating rooming scheduling and nurse scheduling **Sept. 2017 to Dec. 2017**
Core member, Shanghai Jiao Tong University *Advisor: Prof. Zhibin Jiang & Prof. Na Geng*

- Constructed the multi-objective optimization model of the nurse scheduling problem to reduce overtime for nurses. Used LINGO to solve the linear programming and tested the model with real data from the hospital.

TEACHING EXPERIENCE

- 2021 Spring - ME6102 (Mechanical design reliability analysis) Teaching Assistant
- 2021 Spring - ME391 (MATLAB with application in engineering) Teaching Assistant

SELECTED AWARDS

- Weichai Power Scholarship(1%), 2021
- Cummins Dr. Lyn Scholarship(1%), 2020
- The SJTU A level Scholarship(5%), 2018
- The second prize of the "12th Dongfeng Nissan Cup –Tsinghua IE Liangjian National Industrial Engineering Application Case Competition"(5%), 2018
- The SJTU B level Scholarship(10%), 2017
- The SJTU C level Scholarship(15%), 2016

SKILLS & HOBBIES

Software Python, Matlab, C++
Languages Mandarin: native. English: professional proficiency. Korean: basic conversation
Hobbies Photography, Traveling, Dancing

SELF-ASSESSMENT

- Excellent demonstration in team-working, diligent, responsible, optimistic