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## PERSONAL DATA

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## EDUCATION

Jan. 2016 ~	Ph.D. candidate, School of Information System Singapore Management University, Singapore
Feb. 2015	Master of Science in Engineering, Industrial Engineering Pusan National University, Busan, South Korea Thesis: An Online Algorithm for Personal Rapid Transit Dispatching and Routing
Feb. 2013	Bachelor of Science in Engineering, Industrial Engineering (Minor: Mathematics) Pusan National University, Busan, South Korea Thesis: The Production Planning of the Oil Refining Industry Considering Certified Emission Reduction

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## PUBLICATION AND TALK

Working paper (\* The date reflects the moment when the latest draft was updated.)

- **HAN, Chung-Kyun**; CHENG, Shih-Fen; LAU, Hoong Chuin; and MISRA, Archan. Smart bundling for the crowdsourced last-mile logistics: The case with public transport users, March 2019.
- **HAN, Chung-Kyun**; CHENG, Shih-Fen; and LAU, Hoong Chuin. Scalable Crowdsourced Delivery Planning with Probabilistic Worker Mobility Patterns, May 2020.

### Conference

- **HAN, Chung-Kyun**; and CHENG, Shih-Fen. An Exact Single-Agent Task Selection Algorithm for the Crowdsourced Logistics. *Proceedings of 29th International Joint Conference on Artificial Intelligence and the 17th Pacific Rim International Conference on Artificial Intelligence (IJCAI-PRICAI2020)*. Yokohama, Japan, July 11-17 2020. (To be appeared)
- **HAN, Chung-Kyun**; CHENG, Shih-Fen; and LAU, Hoong Chuin. Scalable Crowdsourced Delivery Planning with Probabilistic Worker Mobility Patterns. *The 9th International Conference on Logistics and Maritime Systems (LOGMS 2019)*. Singapore, August 14-16 2019.
- **HAN, Chung-Kyun**; CHENG, Shih-Fen; and VARAKANTHAM, Pradeep. A homophily-free community detection framework for trajectories with delayed responses. *Proceedings of the 18th International Conference on Autonomous Agents and Multiagent Systems (AAMAS-19)*. Montreal, Canada, May 13-17 2019. (Extended Abstract)
- **HAN, Chung-Kyun**; MISRA, Archan; and CHENG, Shih-Fen. Mobility-driven BLE transmit-power adaptation for participatory data muling. *IEEE 24th International Conference on Parallel and Distributed Systems (ICPADS)*. Singapore, December 11-13 2018.
- **HAN, Chung-Kyun**; KIM Baek-Hyun; and HA, Byung-Hyun. Online conflict-free dispatching and routing of personal rapid transits based on the nearest neighbor dispatching rule. *The 15th Asia Pacific Industrial Engineering and Management Systems Conference (APIEMS2014)*. Jeju, Korea, October 12-15 2014.
- KIM Junho; **HAN, Chung-Kyun**; HA, Byung-Hyun; and YUN Won Young. Scheduling of Athletic Shoe Assembly Lines Considering Learning Effect. *The 17th International Conference on Industrial Engineering Theory, Applications and Practice (IJIE2013)*. Busan, Korea, October 6-9 2013.

### Workshop/Symposium

- **HAN, Chung-Kyun**; CHENG, Shih-Fen; LAU, Hoong Chuin; and MISRA, Archan. Smart Bundling for the Crowdsourced Last-Mile Logistics: The case with Public Transport users. *The 2018 International Symposium in Modelling and Simulation for Smart Systems (MSQ 2018)*. Singapore, October 18- 2018.

- LIN, Larry; **HAN, Chung-Kyun**; CHENG, Shih-Fen; LAU, Hoong Chuin; and MISRA, Archan. Smart Bundling for Crowdsourced Package Deliveries. *6th INFORMS Transportation Science and Logistics Society Workshop (TSL-18)*. Hong Kong, January 8-10 2018.
- KWON, Bo bae; **HAN, Chung-Kyun**; and HA, Byung-Hyun. An Online Dispatching Algorithm Based on Nearest Neighbor Heuristics for Personal Rapid Transit Systems. *2014 Decision Analysis Symposium*. Taipei, Taiwan, January 18 2014.

#### Journal

- **HAN, Chung-Kyun**; KIM, Baek-Hyun; JEONG, Rag-Gyo; and HA, Byung-Hyun. A Dispatching and Routing Algorithm for Personal Rapid Transit by Considering Congestion. *The Transactions of the Korean Institute of Electrical Engineers*, vol. 64, no. 11, pp. 1578-1586, 2015.
- **HAN, Chung-Kyun**; KWON, Bo bae; KIM, Baek-Hyun; JEONG, Rag-Gyo; LEE, Hoon; and HA, Byung-Hyun. An Online Personal Rapid Transit Dispatching Algorithm Based on Nearest Neighbor Dispatching Rule. *Journal of the Korea Society for Simulation*, vol. 23, no. 4, pp. 97-109, 2014.

### HONOR & AWARD

- Best paper award, 2014 Decision Analysis Symposium, Society for Excelling Enterprises and Decisions, Feb. 2014.
- Participation Award, Start-up competition, Pusan National University, Nov. 2012.
- Second Prize, Korea SCM Competition, Korean society of Supply Chain Management, Jun. 2012.
- Participation Award, Smart phone application development, Pusan National University, Feb. 2011.

### PATENT

- PATH PLANNING DETERMINATION AND ALLOCATION METHOD OF DRIVERLESS GROUND VEHICLE, South Korea Patent 1017405290000, issued May 22 2017.

### EXPERIENCE

Jan. 2016 - Current	Full-Time Ph.D. Student Fujitsu-SMU Urban Computing and Engineering Corp. Lab., Singapore Management University Singapore
Mar. 2015 - Dec. 2015	Junior Researcher Institute of Logistics Innovation and Networking, Pusan National University Busan, South Korea
Mar. 2013 - Feb. 2015	Full-Time Master's Student Information & Knowledge Engineering Lab., Pusan National University Busan, South Korea
Mar. 2010 - Feb. 2013	Student Researcher Information & Knowledge Engineering Lab., Pusan National University Busan, South Korea
Apr. 2008 - Feb. 2010	Military Service Republic of Korea Army Gyeonggi, South Korea
Dec. 2007 - Mar. 2008	Student Researcher Information & Knowledge Engineering Lab., Pusan National University Busan, South Korea

### SKILL

- Optimization Technique; Design & Development
  - Exact Approach: Branch-and-Cut, Branch-and-Price, Branch-and-Bound
  - Efficient Algorithm: Column Generation, Lagrangian Relaxation, Metaheuristics
  - Mathematical Modeling: Vehicle Routing Problem, Production Planning Problem
  - Simulation
- Data Analysis

- Web Crawling
- Data Preprocessing: Geospatial Data, Big Data
- Data Visualization
- Programming
  - Python (Expert): NumPy, SciPy, Pandas, Matplotlib, PyQt, GeoPy, Selenium, ... etc.
  - C/C++ (Advanced) & Java (Intermediate): Algorithm Development and Concurrent Programming
- Software
  - Optimization Solver: CPLEX, Gurobi
  - Documentation: Latex, MS office, G Suite
  - System Development: Git, Amazon Web Services, Linux/Unix
- Language: English (Fluent), Korean (Native)

## PROJECT

(\* marked projects are initiated by personal interests.)

Nov. 2019 - Current	Tools for quantitative investing* Function <ul style="list-style-type: none"> <li>• Data crawling and collection with APIs</li> <li>• Market monitoring &amp; Email notification</li> <li>• Backtesting</li> <li>• Chart drawing</li> </ul> Investment strategy <ul style="list-style-type: none"> <li>• Relative Strength Index</li> <li>• Asset Allocation based on Dual Momentum</li> </ul>
Oct. 2017 - Current	Task recommendation systems for last-mile logistics with crowdsourcing Output <ul style="list-style-type: none"> <li>• Mathematical models (implemented in Python with Gurobi API, in C/C++ with CPLEX API)</li> <li>• Recommendation algorithms (implemented in Java with CPLEX API, in C/C++ with CPLEX API)</li> <li>• Visualizer (implemented in Python)</li> <li>• Publication (one conference paper)</li> </ul> Related organization <ul style="list-style-type: none"> <li>• Fujitsu-SMU Urban Computing and Engineering Corp. Lab</li> </ul>
Jun. 2019 - Aug. 2019	Tools for comparing prices of flight tickets Function <ul style="list-style-type: none"> <li>• Data crawling and collection with APIs</li> <li>• Data Analysis</li> </ul> Related organization <ul style="list-style-type: none"> <li>• Skyscanner</li> </ul>
Jul. 2018 - Nov. 2018	Reviewing the Korean version of ICDL Computing (Python) exam Related organization <ul style="list-style-type: none"> <li>• Korea Productivity Center</li> </ul>
Aug. 2017 - Dec. 2017	Simulation study on data muling of IoT sensors through mobile crowdsourcing in a campus Output <ul style="list-style-type: none"> <li>• Algorithm for deciding the transmission power of IoT devices (implemented in Python)</li> <li>• Simulator and Visualizer (implemented in Python)</li> <li>• Publication (one conference paper)</li> </ul> Related organization <ul style="list-style-type: none"> <li>• Living Analytics Research Centre</li> </ul>
Jan. 2016 - Jun. 2017	Data Analysis on log datasets from a taxi company Output

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	<ul style="list-style-type: none"> <li>• Analysis report on quantifying the impact of information boards</li> <li>• Community detection algorithm based on series of statistical models</li> <li>• Taxi Trajectory Visualizer</li> <li>• Publication (one conference poster)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Fujitsu-SMU Urban Computing and Engineering Corp. Lab</li> </ul>
May 2013 - Dec. 2016	<p>Decision support system for Personal Rapid Transit operations</p> <p>Output</p> <ul style="list-style-type: none"> <li>• Algorithm for dispatching and routing vehicles (implemented in Python)</li> <li>• Simulator and Visualizer (implemented in Python)</li> <li>• Publication (two journal paper; paper 1 &amp; paper 2, one conference paper) and Patent (one case)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Information &amp; Knowledge Engineering Lab.</li> <li>• Korea Railroad Research Institute</li> <li>• Total Soft Bank Ltd.</li> </ul>
Nov. 2015 - Dec. 2015	<p>Tool for monitoring foreign currency rates *</p> <p>Function</p> <ul style="list-style-type: none"> <li>• Data collection</li> <li>• Charting</li> <li>• Email notification</li> </ul>
Feb. 2015 - Mar. 2015	<p>Evaluation of vehicles' operation in a container terminal</p> <p>Output</p> <ul style="list-style-type: none"> <li>• Visualizer and Performance reviewer (implemented in Python)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Information &amp; Knowledge Engineering Lab.</li> <li>• CyberLogitec Co., Ltd.</li> </ul>
Feb. 2014 - Oct. 2014	<p>Simulation study for evaluating operations of forklifts in a shipbuilding yard</p> <p>Output</p> <ul style="list-style-type: none"> <li>• Simulator and Visualizer (implemented in Python)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Information &amp; Knowledge Engineering Lab.</li> <li>• Daewoo Shipbuilding &amp; Marine Engineering Co. Ltd.</li> </ul>
May 2013 - Nov. 2013	<p>Production planning in assembly lines for athletic shoes</p> <p>Output</p> <ul style="list-style-type: none"> <li>• Mathematical model (implemented in Python with CPLEX OPL)</li> <li>• Publication (one conference paper)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Information &amp; Knowledge Engineering Lab.</li> <li>• Chang Shin Inc.</li> </ul>
Mar. 2010 - Feb. 2013	<p>Various research and development projects</p> <p>Output</p> <ul style="list-style-type: none"> <li>• Algorithms for planning various operations in a container terminal (implemented in Python)</li> <li>• Simulator and Visualizer (implemented in Python)</li> </ul> <p>Related organization</p> <ul style="list-style-type: none"> <li>• Information &amp; Knowledge Engineering Lab.</li> </ul>

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## LICENSE & CERTIFICATION

- Amazon Web Services Cloud Practitioner
  - Issuing authority: Amazon Web Services (AWS)
  - Issued date: May 14 2020
  - Expiration date: May 14 2023
  - Credential ID: 4TQR7221GE4QQEWH
- Rescue Diver
  - Issuing authority: Professional Association of Diving Instructors
  - Issued date: Jun. 06 2018 (no expiration date)
  - Credential ID: 1806AW6941

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- Kayaking Proficiency Personal Skill STAR Award
    - Issuing authority: Singapore Canoe Federation
    - Issued date: Apr. 15 2018 (no expiration date)
    - Credential ID: SCF 1029906
  - CPR/AED/First Aid
    - Issuing authority: Emergency First Response
    - Issued date: Oct. 01 2016
    - Expiration date: Oct. 01 2018
    - Credential ID: 1610AY3573
  - Advanced Open Water Diver
    - Issuing authority: Professional Association of Diving Instructors
    - Issued date: Nov. 20 2015 (no expiration date)
    - Credential ID: 1511AX3138
  - Open Water Diver
    - Issuing authority: Scuba Diving International
    - Issued date: Jul. 15 2015 (no expiration date)
    - Credential ID: 655013
  - Driver's License
    - Issuing authority: Busan Metropolitan Police Agency
    - Issued date: Feb. 19 2014
    - Expiration date: Dec. 31 2024
    - Credential ID: 07-601739-10

## OTHER ACTIVITY

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- Organizer, Wine gathering in Singapore, Mar. 2018 - Current.
- Organizer, Global IT Professionals in Singapore (gathering for sharing information and networking), Jan. 2017 - Current.
- Volunteer work, The 3rd Busan Maru International Music Festival, Sep. 2012.
- Reporter, The Hyowon Herald (English newspaper in Pusan National University), Mar. 2007 - Feb. 2008.

## INTEREST

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- Advanced Optimization Technique
- Data Analysis & Visualization
- Last-mile Logistics
- Crowdsourcing
- Cloud Computing
- Quantitative Investing