



Ivan Kristianto Singgih, Ph.D.

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Working experience:

2020-now Postdoctoral Researcher, Industrial and Systems Engineering, KAIST, Korea

2017-2020 Research Assistant Professor & Postdoctoral Researcher, Industrial and Management Engineering, POSTECH, Korea

Training experience (as instructor/teaching assistant):

2020 LG Company with KAIST (“Genetic algorithm in manufacturing product design”; “Smart factory using CNN and LEGO Mindstorms”)

Teaching experience:

2020 KAIST (“Genetic algorithm for vehicle routing problem”; “Simulation using Anylogistix”)

Projects:

2020-now Smart Manufacturing Education using Flexible Machine Job Shop System Embedded with Machine Learning Technologies (KAIST and CubicTech)

2020 Recommendation System for Optimal Tire Design (KAIST and Hankook Tire)

2019-2020 Torpedo Ladle Car Pairing and Routing Optimization (POSTECH and POSCO)

2019 Development of Window Frame Cutting Algorithm (POSTECH and LG Electronics)

2015-2017 Technological Development of Low-carbon Automated Container Terminals Project (Pusan National University and the Ministry of Oceans and Fisheries, Korea)

Research experience:

- 5 SCIE (Web of Science) indexed journal papers
- Other 3 Scopus (Q2-Q4) indexed journal papers
- SCIE and Scopus journal paper reviews
- Keynote speeches, Journal editorial board member, Technical program committee member of conferences

Research interests:

- Logistics systems (container terminal, drone routing)
- Operations Research
- Smart systems (smart city, smart port, smart manufacturing, smart logistics)
- Machine learning (classification techniques, CNN)
- Serious game development (blockchain, mathematical modelling)

Skills:

- Mathematical modeling, algorithms, metaheuristics (genetic algorithm etc)
- Simulation: Anylogic, Tecnomatix Plant Simulation
- Programming language: Java (Eclipse Juno), MATLAB, C++ (Visual Studio), Python
- Mathematical model solver: LINGO, CPLEX

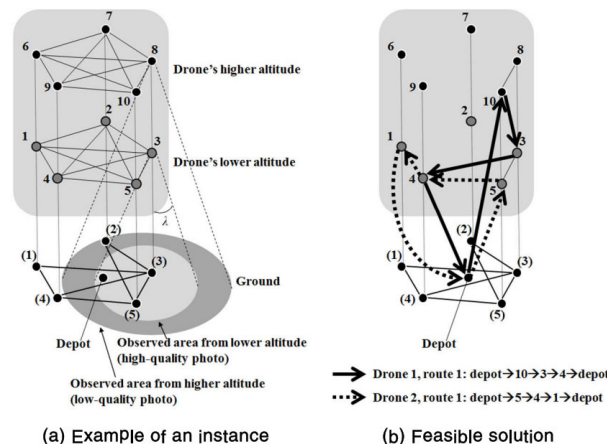
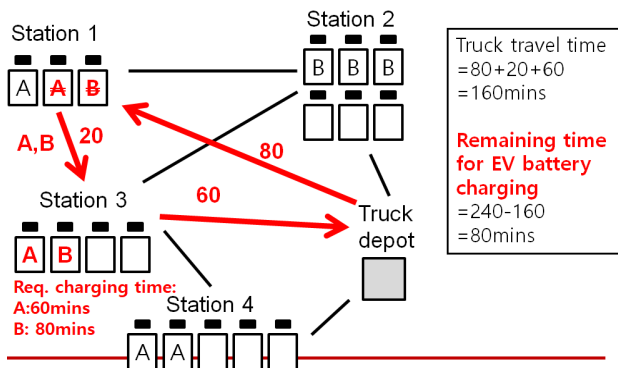
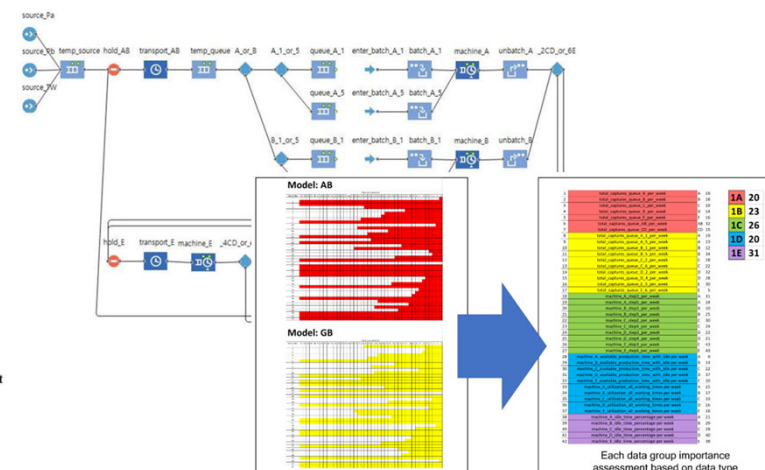


FIGURE 1. Instance and a feasible solution.

Drone 3-dimensional routing



Electric vehicle relocation

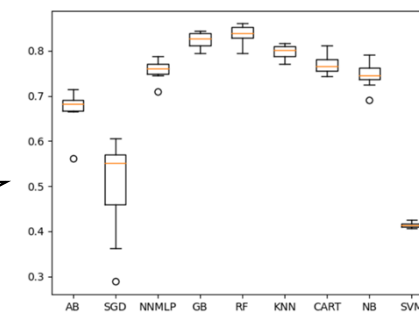


Digital twin of semiconductor fab

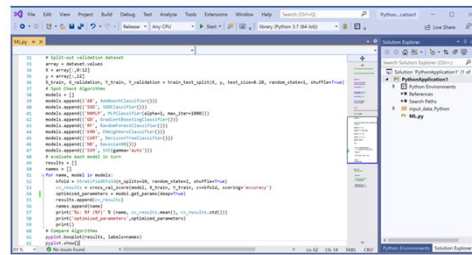
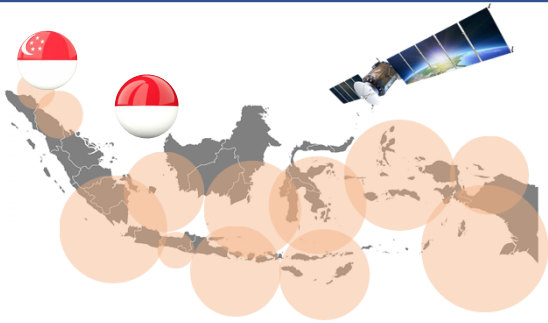
12 particulate matters
(NO, CO,
O3, Benzene, ...)

Prediction
(ML models)

Air quality
(good, moderate, poor)



Air quality prediction (machine learning)



Analisa perkembangan dan daya saing tol laut Indonesia
 (+ Lembaga Penerbangan dan Antariksa Nasional, ITB, ITS)

Sharing (machine learning code, modelling)
 (+UI, UII, ITS, ITB)



Online/offline learning (ML)

- Pengukuran kemacetan
- Identifikasi bottleneck system
- Penjadwalan

Pengukuran dan manajemen kemacetan di terminal peti kemas
 (+Terminal Petikemas Kualatanjung, KAIST, ITB)

Research and paper writing collaborations:
(Alibaba China, Seoul National University, PT. PAL Indonesia, Hankuk University of Foreign Studies Korea)

Offered collaborations:

- Paper discussions (Web of Science/top Scopus journal paper study)
- Real problem solving (approaches to companies or research institutes)
- Paper idea sharing
- Top journal paper publication
- Knowledge sharing (webinar, code sharing and training)
- Joint research supervision

Required collaborations:

- Data retrieval, analysis, and visualization
- User interface for algorithm's code (for use in companies)
- Research grant application (Indonesia-based funding)

Ongoing Collaborations

Collaboration Plans