Kyungmin **Kim**

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Edu**cation**

Pohang University of Science and Technology *Pohang , Korea*

Ph.D. in Graduate School of Artificial Intelligence, GPA: 3.47/4.3 | Advisor: Sangdon Park *March 2024 -*

Pohang University of Science and Technology *Pohang , Korea*

M.S. in Industrial and Management Engineering, GPA: 3.43/4.3 | Advisor: Minwoo Chae *March 2022 - February 2024*

Thesis: Markov Chain Monte Carlo-based Manufacturing Process Control Algorithm: An Application to Steel Plate Production

Korea University *Seoul, Korea*

B.E. in Statistics, GPA: 3.97/4.5 *March 2014 - August 2020*

Exp**erience**

Hanyang University *Seoul, Korea*

Design Informatics Lab *July 2021 - November 2021*

- Generalizing the existing Bayesian information gain (BIG) framework designed as the human-system interaction system, developed the statistical methodology, BIGexplore, which supports the high-dimensional design space exploration.
- Unlike the BIG framework, BIGexplore can capture the exploration pattern of the user without a pre-defined goal. Additionally, BIGexplore reduces the computational burden of searching the design space which grows exponentially by the size of the design space, by devising an algorithm that reduces the search space based on the user behavior.

Development of the Quality Control Algorithm based on the Predictive Model for Automative Steel Plates *Pohang, Korea*

POSCO *April 2022 - December 2022*

- Exploratory data analysis (EDA) to figure out causes of low prediction accuracy on the specific type of steel plate and EDA-based data engineering to enhance the prediction accuracy.
- Based on the prediction model, devised the probabilistic quality control algorithm using Metropolis-Hastings algorithm

Anomaly Detection and Data Calibration for Improving the Statistical Quality Models for Annealing and Plating Process *Pohang, Korea*

POSCO *February 2023 - October 2023*

- Extensive exploratory data analysis (EDA) to detect the anomaly caused by the sensor degradation, which inevitably results in the erroneous prediction model training.
- Combined with the consultation with on-site workers and experts, conducted the data calibration and re-trained the prediction model. The model is expected to be applied to the probabilistic manufacturing process control algorithm.

Cou**rsework**

Statistics

- (Undergraduate) Regression Analysis (A+), Probability Theory (A+), Sampling Theory (A+), Mathematical Statistics (B), Statistical Computing (A), Time Series Analysis (B+), Nonparametric Statistics (A+), Linear Methodology (A+), Experimental Design (A), Multivariate Analysis (A+)
- (Graduate) Theoretical Statistics, Categorical Data Analysis, Bayesian Statistics (A+), Computational Statistics, Inferential Statistics, Statistical Methods for Linear Model, International Finance 2

Mathematics

- (Undergraduate) Analysis I (A), Analysis II (A+), Topics in Analysis (A+), Linear Algebra I (B+), Linear Algebra II (A+), Differential Equations (A)
- (Graduate) Real Analysis (B+), Mathematics for Data Science (A+), Convex Optimization (A)

Computer Science

- (Graduate) Probabilistic Graphical Models (A-), Deep Learning Natural Language Processing (B), Machine Learning (A-)

Publications

†: Authors contributed equally.
* : Corresponding author

Selective Generation for Language Models
Minjae Lee[†], **Kyungmin Kim**[†], Taesoo Kim, Sangdon Park[*]
Advances in Neural Information Processing Systems (Spotlight), 2024, Vancouver, BC, Canada

BIGexplore: Bayesian Information Gain Framework for Information Exploration
Kihoon Son[†], **Kyungmin Kim**[†], Kyunghoon Hyun[*]
Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems, 2022, New Orleans, LA, USA

Conference Presentations

Markov Chain Monte Carlo-based Manufacturing Process Control Algorithm (Poster Session)
Kyungmin Kim, Jeyong Lee, Minwoo Chae
Korean Statistical Society Winter Conference, Dec. 2022, Jeju, Korea

Selective Generation for Language Models (Poster Session)
Minjae Lee, **Kyungmin Kim**, Taesoo Kim, Sangdon Park
Korean Artificial Intelligence Association Summer Conference, Aug. 2024, Pusan, Korea

Computer Skills

Programming   R (Proficient), Python (Proficient), SAS (Novice)
Typesetting   LaTeX (Proficient)

Languages

Native   Korean
Fluent   English
Beginner   German