

Hyeontae Jo

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EDUCATION

Ph.D., Partial Differential Equations — POSTECH (2014.03 – 2020.02)

Advisor: Hyung Ju Hwang

B.S., Mathematics — POSTECH (2010.03 – 2014.02)

APPOINTMENTS

Assistant Professor, Ajou University (2026.03 – present)

Assistant Professor, Korea University Sejong (2024.03 – 2026.02)

Senior Researcher, IBS Biomedical Mathematics Group (BIMAG) (2022.02 – 2024.02)

Postdoctoral Researcher, Institute for Basic Science, POSTECH (2020.08 – 2022.02)

Postdoctoral Researcher, Department of Mathematics, POSTECH (2020.04 – 2020.07)

GRANTS & PROJECTS

AI + Science & Technology Research Grant — National Research Foundation of Korea (2026.07 – 2031.06)

NRF Excellent Young Researcher Program — National Research Foundation of Korea (2024.04 – 2029.03)

Blockchain platform development — (2021.03 – 2022.02)

AI model for industrial intelligent controllers — (2020.11 – 2021.04)

Thickness deviation model for cold rolling — POSCO (2020.11 – 2021.02)

Mobile device location tracking algorithm — ELUON (2020.08 – 2020.10)

Temperature prediction model for hot rolling — POSCO (2019.07 – 2020.02)

AI algorithms for steelmaking processes — POSCO (2017.07 – 2018.11)

PUBLICATIONS (25)

Lee, K.W., Jo, H.¹, Lee, S., Cho, T.J.. Predictive Modeling of Disinfectant Efficacy: Integrating Bacterial Inactivation Kinetics with Human Health Risk Assessment. *Food Research International*, 2026. Cited by 0

Chae, et al.. A Machine Learning-based Screening Tool for classifying Post-traumatic Stress Disorder in Firefighters. *BMC Psychiatry*, 2026. Cited by 0

Cho, C., Cho, S.W., Jo, H.*, Hwang, H.J.. Estimation of System Parameters Including Repeated Cross-Sectional Data: Emulator-Informed Deep-Generative Model. *SIAM Journal on Scientific Computing*, 2026. Cited by 3

Hwang, G., Jo, H.*, Kim, J.K.. Data-driven inference of coupling functions in oscillatory systems via physics-informed neural networks. *Physical Review Research*, 2026. Cited by 1

Ryu, J., Jo, H.¹, Hwang, H.J.. Attention with Quantum Fourier Transform for Operator Learning in Dynamical Systems. *Physica Scripta*, 2026. Cited by 0

Jo, H.¹, Joisc, K., Kim, J.K.. Neural Network-Based Parameter Estimation for Non-Autonomous Differential Equations with Discontinuous Signals. *SIAM Journal on Applied Mathematics*, 2026. Cited by 5

Cho, H., Jo, H.*, Hwang, H.J.. Learning from Imperfect Data: Robust Inference of Dynamic Systems using Simulation-based Generative Model. *AAAI* 2026. Cited by 1

Lee, E.S., Jo, H.¹, Hwang, H.J.. Reverse Engineering for Programmable Logic Controller Structure Estimation via White Box Networks. *Journal of Intelligent Manufacturing*, 2025. Cited by 4

Cawiding, O.R., Jo, H.¹, Jeon, S., Ardi, F.R., Kim, J.K., Chung, S.. Cancer-related Dysfunctional Beliefs and Attitude about Sleep-6 (C-DBAS-6): A practical and accurate shortened version using XGBoost and SymScore. *Sleep and Biological Rhythms*, 2025. Cited by 5

Lee, S., Cawiding, O.R., Jo, H., Kim, J.K., Joo, E.Y.. 1332 Evaluating Patient Characteristics Influencing the Predictive Accuracy of Sleep Disorder Questionnaires. *Sleep*, 2025. Cited by 0

Cawiding, O.R., Lee, S., Jo, H., Kim, S., Suh, S., Joo, E.Y., Chung, S., Kim, J.K.. SymScore: Machine Learning Accuracy Meets Transparency in a Symbolic Regression-Based Clinical Score Generator. *Computers in Biology and Medicine*, 2025. Cited by 13

Jo, H.¹, Cho, S.W., Hwang, H.J.. Estimating the Distribution of Parameters in Differential Equations with Repeated Cross-Sectional Data. *PLOS Computational Biology*, 2024. Cited by 3

Jo, H.¹, Jeon, H.J., Ahn, J., Jeon, S., Kim, J.K., Chung, S.. Dysfunctional Beliefs and Attitudes about Sleep-6 (DBAS-6): Data-driven Shortened Version from a Machine Learning Approach. *Sleep Medicine*, 2024. Cited by 20

Jo, H.¹, Lim, M., Jeon, H.J., Ahn, J., Jeon, S., Kim, J.K., Chung, S.. Data-driven Shortened Insomnia Severity Index (ISI): A Machine Learning Approach. *Sleep and Breathing*, 2024. Cited by 14

Jo, H.¹, Hong, H., Hwang, H.J., Chang, W., Kim, J.K.. Density Physics-Informed Neural Network identifies sources of cell heterogeneity in signal transduction under antibiotic stress. *Cell Patterns*, 2024. Cited by 30

Park, M.S., Jo, H.¹, Lee, H., Jung, S.Y., Hwang, H.J.. Machine Learning-Based COVID-19 Patients Triage Algorithm using Patient-Generated Health Data from Nationwide Multicenter Database. *Infectious Diseases and Therapy*, 2022. Cited by 25

Hwang, H.J., Jung, S., Park, M.S., Jo, H.. Development of patients triage algorithm from nationwide COVID-19 registry data based on machine learning. , 2021. Cited by 0

Jung, S.Y., Jo, H.¹, Son, H., Hwang, H.J.. Real-World Implications of Rapidly Responsive COVID-19 Spread Model with Time Dependent Parameters Via Deep Learning: Algorithm Development and Validation. *Journal of Medical Internet Research*, 2020. Cited by 89

Hwang, R., Jo, H., Kim, K.S., Hwang, H.J.. The Hybrid Model of a Mathematical Model and Neural Network Model for Rolling Force and Temperature Prediction in Hot Rolling Processes. *IEEE Access*, 2020. Cited by 73

Hwang, H.J., Jang, J.W., Jo, H.¹, Lee, J.Y.. Trend to Equilibrium for the Kinetic Fokker-Planck Equation via the Neural Network Approach. *Journal of Computational Physics*, 2020. Cited by 46

Jung, J., Yoon, J.I., Park, H.K., Jo, H., Kim, H.S.. Microstructure design using machine learning generated low dimensional and continuous design space. *Materialia*, 2020. Cited by 68

Jo, H.¹, Son, H.¹, Hwang, H.J., Kim, E.. Deep Neural Network Approach to Forward-Inverse Problems. *Networks and Heterogeneous Media*, 2020. Cited by 48

Hwang, H.J., Jo, H.¹. The diffusive limit of the Vlasov-Fokker-Planck equation with the chemotactic sensitivity coupled to a parabolic equation. *Journal of Mathematical Analysis and Applications*, 2019. Cited by 0

Jo, H.¹, Hwang, H.J., Phan, D., Lee, Y., Jang, H.. Endpoint temperature prediction model for LD converters using machine-learning techniques. *2019 IEEE 6th International Conference on Industrial Engineering and Applications (ICIEA)*. Cited by 26

Jo, H.¹, Hwang, S., Phan, D., Hwang, H.J.. Machine Learning Technology applied to Steel Manufacturing Process. . Cited by 0

UNDER REVIEW

From Nonsmooth Minima to Smooth Branches via Heat Kernel Regularization

Prediction for Overall Survival in Multiple Myeloma with XGB-AFT

Deep Predictor-Corrector Networks for Robust Parameter Estimation in Non-autonomous System with Discontinuous Inputs

SELECTED TALKS

SciCADE 2026, Edinburgh, UK (2026-07)

ReaDiNet 2025, Hokkaido, Japan (2025-10)

SIAM Annual Meeting (AN25), Montreal, Canada (2025-07)

International Workshop on Computational and Mathematical Methods in Data Science, Boracay, Philippines (2025-04)

SMB 2024 (Society for Mathematical Biology) (2024-01)

ICIAM 2023 (2023-01)

SIAM 2022 (2022-01)