Chang Hun Kim

CONTACT INFORMATION

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RESEARCH INTERESTS

Transformer Efficiency improvement for training and inference
Foundation model
Time Series Forecasting
Graph Deep Learning

EDUCATION

M.S in Artificial Intelligence — Sep 2022 – Mar 2025(Expected)
Friedrich Alexander University — Germany
Thesis: RetNetHTR: Leveraging Retentive Networks for Efficient and Accurate Handwritten Text Recognition (In preparation)
Research Assistant
- Medical Imaging, Artificial Intelligence Medical Imaging Lab

Teaching Assistant
- Advanced Deep Learning
- Introduction to Machine Learning

B.S in Computer Science — Mar 2014 – Feb 2021
University of Seoul — South Korea
2 years of absence of obligatory military service
Undergraduate Research Assistant
- Molecular Toxicity Prediction

EXPERIENCE

Research Assistant @ Artificial Intelligence Medical Imaging Lab — Mar 2024 - Present
Friedrich Alexander University, Germany
Projects: Denoise fluorescence microscopy image using self-supervised learning

Tutor @ Pattern Recognition Lab — Sep 2023 - Present
Friedrich Alexander University, Germany
Advanced Deep Learning, Introduction to Machine Learning
- Mentor master and bachelor students for programming exercises

Researcher @ Urban Big Data and AI Institute — Jan 2021 – Sep 2022
University of Seoul, South Korea
Projects: Graph Neural Networks for Molecular Toxicity Prediction

AI Educational Content Technical Quality Assurance — May 2021 – Oct 2021
MODULABS, South Korea
- Create educational contents of artificial intelligence for non-expert

Research Intern @ Environmental System Toxicology Lab — Sep 2018 – Dec 2019
University of Seoul, South Korea
Projects: Machine learning for Imbalanced Toxicity data Prediction

PUBLICATIONS

[IN PREPARATION] **Kim, C.**, Mayr, M., Christlein, V. (2025). RetNetHTR: Leveraging Retentive Networks for Efficient and Accurate Handwritten Text Recognition. Proceedings of the International Conference on Document Analysis and Recognition (ICDAR).

[1] **Kim, C.**, Jeong, J., & Choi, J. (2022). Effects of Class Imbalance and Data Scarcity on the Performance of Binary Classification Machine Learning Models Developed Based on ToxCast/Tox21 Assay Data. Chemical Research in Toxicology, 35(12), 2219–2226. https://doi.org/10.1021/acs.chemrestox.2c00189

[2] Jeong, J., Garcia-Reyeros, N., Burgoon, L., Perkins, E., Park, T., Kim, C., Roh, J. Y., & Choi, J. (2019). Development of Adverse Outcome Pathway for PPARγ Antagonism Leading to Pulmonary Fibrosis and Chemical Selection for Its Validation: ToxCast Database and a Deep Learning Artificial Neural Network Model-Based Approach. Chemical Research in Toxicology, 32(6), 1212–1222. https://doi.org/10.1021/acs.chemrestox.9b00040

PATENT

[1] Jeong, J., **Kim, C**., Kim, D., Choi, J. (2022) Adverse Outcome Pathway Network Apparatus Integration for Evaluating Environmental Burden of Diseases and Method for Prioritization of Chemical to Environmental Disease

[2] Jeong, J., **Kim, C.**, Park, T., Roh, J., & Choi, J. (2019) Toxicity Review Priority Substance Selection System Using a Chemical Toxicity Database and a Deep Learning Model Application, Korea Patent 10-2019-0024204

PROJECTS

3D Reconstruction Anthropometric body parts — Oct 2023
- NeRFs, Voxel method, Photogrammetry

Artificial Intelligence Crypto Trading — May 2021
- ARIMA and Machine Learning Models to predict cryptocurrency prices

Computer Science Web Services — Jun 2020
- IaaS Web Services

Malware Detection Model — Jun 2019
- Machine learning malware detection engines that were added to the Kicom AV vaccine

Saf Kids (Android Application) — Aug 2018
- App to notify parents when their children arrive at kindergarten

SKILLS

Programming Languages : Python, R, SQL Java, C, C++, C#, Bash, JavaScript

Tools: Deep Learning Framework(PyTorch ,TensorFlow, Deepchem), Machine Learning Framework(Scikit-Learn, PyCaret), Libraries(Dlib, OpenCV,LMDB), Development / Database(Django, Flask, Node.js, PyQT, MongoDB, MariaDB, MySQL, FireBase)

AWARD

LG AI Research Hackathon (Awarded 4th Place). — Oct 2020
- Developed Encoder-Decoder Model that converts molecular images into SMILES

ACTIVITIS

R.A.H (Breakdance club), University of Seoul — 2015
Leader
- Led practice sessions and performances