

Tae Hoon Kweon

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Research Interests

Artificial Intelligence (AI) in Bioinformatics

- AI models to enhance understanding of genetic variations and their implications on gene expression

AI-driven Precision medicine

- AI model predicts personalized drug response and identify promising individual drug candidates

Machine Learning in Drug discovery

- Models to design novel molecular structures, assess drug-ability, and predict various binding potentials.

Education

Seoul National University

M.S. in Computer Science and Engineering
(Advisor: Prof. Sun Kim)

Seoul, Republic of Korea

Sep. 2023 – Present

military service (2 years)

The University of Michigan - Shanghai Jiao Tong University Joint Institute

B.S. in Electrical and Computer Engineering

Shanghai, China

Sep. 2016 – Aug. 2021

Research Projects

Predicting clinical drug response through bulk tumor deconvolution from single cells

Feb. 2024 - Present

- Bridge the gap between *in vitro* and *in vivo* datasets
- Plan to adopt a generative model for bulk tumor deconvolution

Analyzing the gene-level relationship between intratumoral heterogeneity of promoter DNA methylation and drug response

Sep. 2023- Jun. 2024

- Developed a web-based exploratory data mining tool to identify significant correlations between intratumoral heterogeneity of promoter DNA methylation and drug response
- Gives an insight to understand drug response mechanism and guides precision oncology initiatives

Conference

Kweon TH, Koo B, Park S, Southirath T, Kim S. Web-based Exploratory Data Mining System for Analyzing the Gene-level Relationship between Intratumoral Heterogeneity of Promoter DNA Methylation and Drug Response. In *Proceeding of the 2024 Korea Computer Congress*, 2024

Teaching

Seoul National University

- **Teaching Assistant**, IT fundamentals for Bioinformatics Spring 2024
- **University Teaching Assistant**, Algorithms Fall 2023

Extracurricular Activities

Smart Human Resource Development (SMHRD)

Gwangju, Republic of Korea

ML-based Big Data Analysis course

Dec.2020 – Feb. 2021

- SMHRD Kaggle competition (1st / 27 teams) Jan 2021
 - Task: Personal Income Classification from multivariate personal data
- SMHRD Final project (1st / 27 teams) Feb 2021
 - Task: YouTube creator growth predictions (multivariate time series forecasting)

Coursera courses

- AI For Everyone, DeepLearning.AI (Andrew Ng) May 2023
- Python Data Structures, University of Michigan May 2020
- Programming for Everybody (Getting Started with Python), University of Michigan May 2020

Technical Skills

Programming language	Python, C/C++, MATLAB, R
Machine learning	Pytorch, Tensorflow
Web	React, HTML, CSS