

Eunyoung Kim

Ph.D.

Contact Information

Address Bioinformatics and Intelligence Laboratory
School of Electrical Engineering and Computer Science
Gwangju Institute of Science and Technology (GIST)
123 Cheomdangwagi-ro, Buk-gu, Gwangju, 61005, Republic of Korea

Phone Mobile : +82-10-9931-2124
Office : +82-62-715-2287

E-mail eykim@gm.gist.ac.kr

Research Interests

Bioinformatics, Cheminformatics, Computational drug discovery, Drug safety prediction

Education

Ph.D.	School of Electrical Engineering and Computer Science, GIST, Gwangju, Korea Thesis: Machine learning and multi-omics based drug candidates prediction modeling Advisor: Prof. Hojung Nam	2016.03 – 2022.08
M.S.	Information and Communications, GIST, Gwangju, Korea Thesis: Model construction for predicting drug candidates by using machine learning algorithms Advisor: Prof. Hojung Nam	2014.09 – 2016.02
B.S.	Computer Science, Sejong Univ., Seoul, Korea	2010.03 – 2014.08

Publications (Peer Reviewed)

Gwangmin Kim†, Eunyoung Kim†, Ohhyeon Kwon†, Seunghwan Jung, Seunghyun Wang, Hojung Nam*, Doheon Lee*, "CODA 3.0: Integrating heterogeneous assay data for multi-compound drug discovery", BMC Bioinformatics, Accepted.

Eunyoung Kim, Hojung Nam*, "DeSIDE-DDI: Interpretable prediction of drug-drug interactions using drug-induced gene expressions", Journal of Cheminformatics. 2022 Mar 4;14(1):9. doi: 10.1186/s13321-022-00589-5.

Hyunho Kim, Eunyoung Kim, Ingoo Lee, Bongsung Bae, Minsu Park, Hojung Nam*, " Artificial Intelligence in Drug Discovery: A Comprehensive Review of Data-Driven and Machine Learning Approaches", Biotechnology and Bioprocess Engineering, 2020;25(6):895-930.

Eunyoung Kim†, A-sol Choi†, Hojung Nam*, "Drug repositioning of herbal compounds via a machine-learning approach", BMC Bioinformatics, 2019 20 (Suppl 10) :247.

Eunyoung Kim, Hojung Nam*, "Prediction models for drug-induced hepatotoxicity by using weighted molecular fingerprints", BMC Bioinformatics, 2017, 18(Suppl 7):227.

Project Experience

Bio-Synergy Research Project with Medical Heritage, the Ministry of Science, ICT and Future Planning
Development of a virtual human drug response analysis system by integrating and applying experimental data

2020 - 2021	Platform maintenance and database porting design
2019	Input process template design
2017 - 2018	Experimental data standardization platform design and development
2015 - 2016	Participated in the construction of Compound Combination-Oriented Natural Product Database with Unified Terminology

National Research Foundation of Korea (NRF) grant

System Development of Predicting Drug Toxicity and Side-effects via Explainable Artificial Intelligence

2021 - present Development of drug-drug interaction prediction model

2020 Construction of drug toxicity and side-effects dataset

Bio-medical technology development, the Ministry of Science, ICT and Future Planning
Big Data / Artificial Intelligence-based drug development platform

2018 - 2019 Development of drug repositioning prediction model

National Research Foundation of Korea (NRF) grant

Drug prediction through machine learning techniques and network simulation

2015 - 2016 Development of drug hepatotoxicity prediction model

Conferences/Presentations

- 2022 Eunyoung Kim, Hojung Nam*, "DeSIDE-DDI: Interpretable prediction of drug-drug interactions using drug-induced gene expressions", ISMB 2022, Madison, United States, Jul 10~14, 2022 (oral, poster, best presentation award)
- 2018 Eunyoung Kim, A-sol Choi, Hojung Nam*, "Drug Repositioning of Herbal Compounds via a Machine-Learning Approach", ACM 12th International Workshop on Data and Text Mining in Biomedical Informatics, Turin, Italy, October 22-26, 2018
Eunyoung Kim, A-sol Choi, Hojung Nam*, "Drug repositioning for natural products using machine learning approaches", RECOMB 2018, Paris, France, April 19~24, 2018 (poster)
- 2017 Eunyoung Kim, Hojung Nam*, "Prediction of drug-drug interactions using molecular structure information and link prediction approaches", ISMB/ECCB 2017, Prague Congress Center, Czech Republic, July 21~25, 2017 (poster)
Eunyoung Kim, Hojung Nam*, "Prediction models for drug-induced liver injury using substructure information", The 13th KOGO Winter Symposium 2017, Hongcheon, Korea, Feb 8~10, 2017 (poster)
- 2016 Eunyoung Kim, Hojung Nam*, "Developing prediction model for drug-induced liver injury by using substructure information" BIOINFO 2016, Incheon, Korea, Aug, 17~19, 2016 (poster, best poster award)
Eunyoung Kim, Sangwoo Kim, Suhyun Ha, Hojung Nam*, "Developing compound toxicity classification models using physicochemical properties and structure information", The 14th Asia Pacific Bioinformatics Conference, San Francisco Bay Area, United States, Jan 11-13, 2016 (poster)
- 2015 Eunyoung Kim, Sangwoo Kim, Suhyun Ha, Hojung Nam*, "Toxicity Predictions using Compound Descriptions", the ACM 9th International Workshop on Data and Text Mining in Bioinformatics, Melbourne, Australia, Oct. 23, 2015 (poster)

Patents

약물 상호작용을 예측하는 전자장치 및 그 제어방법, 남호정, 김은영, 2021-0165331 (국내출원), 과기정통부 개인연구지원사업(중견연구), 유전자동의보감사업

Electronic device for predicting Drug-Drug Interactions and the control method thereof, 남호정, 김은영,

PCT/KR2022/004438 (PCT 출원)

Activity & Awards

- 2022 ISCBacademy webinar
- 2022 ISMB 2022, CAMDA COSI, best presentation award
- 2020 Academic Career Workshop for Rising Stars in EECS in Korea, poster presentation
- 2017 GUP(Global University Project) Scholarship in GIST, 2017
- 2016 BIOINFO, Korean Society for Bioinformatics and System Biology, best poster award
- 2016 - 2019 Full government scholarship (Ph.D. program)
- 2015 - 2016 Full government scholarship (M.S. program)

Technical Skills

Programming languages - Python, Matlab, R

Frameworks/Packages - Keras, PyTorch, Pandas, NumPy, Scikit-learn, SciPy, MySQL, PostgreSQL