

Hannah Kim

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Research Interest

COMPUTATIONAL BIOLOGY | ALGORITHM DEVELOPMENT | EVOLUTIONARY GENOMICS | VIRAL EVOLUTION

Education

Temple University

PHD BIOINFORMATICS

• Advisor: Dr. Sergei L Kosakovsky Pond

Philadelphia, PA

08/2019 - current

Carnegie Mellon University

MS COMPUTATIONAL BIOLOGY

Pittsburgh, PA

08/2015 - 12/2016

Carnegie Mellon University

BS CHEMISTRY

Pittsburgh, PA

08/2010 - 05/2013

Relevant Experience

- 2021-2022 **Bioinformatics Engineer**, Lifetime Omics
- 2017-2019 **Bioinformatics Analyst / Software Engineer**, Children's Hospital of Philadelphia
 - 2017 **Research Programmer**, Computational Biology Department, Carnegie Mellon University
 - 2016 **Graduate Researcher**, Computational Biology Department, Carnegie Mellon University
 - 2016 **Course Developer**, Computational Biology Department, Carnegie Mellon University
- 2013-2014 **Post-Baccalaureate Researcher**, Department of Biological Sciences, Carnegie Mellon University
- 2012-2013 **Undergraduate Student Researcher**, Department of Chemistry, Carnegie Mellon University
- 2011 **Student Intern, Summer Research Institute**, Department of Biological Sciences, Carnegie Mellon University

Publications

PUBLISHED

- Huzar, J., **Kim, H.**, Kumar, S., Miura, S. (2022). MOCA for integrated analysis of gene expression and genetic variation in single cells. *Frontiers in Genetics*, 13:831040. doi:10.3389/fgene.2022.831040
- Ding, Y., **Kim, H.**, Madden, K., Loftus, J., Chen, G., Allen, D., Zhang, R., Xu, J., Chen, C., Xu, Y., Tasian, S., Tan, K. (2021). Network Analysis Reveals Synergistic Genetic Dependencies for Rational Combination Therapy in Philadelphia Chromosome-like Acute Lymphoblastic Leukemia. *Clinical Cancer Research*, 27(18). doi:10.1158/1078-0432.CCR-21-0553
- Tarca, A. L., Pataki, B. Á., Romero, R., Sirota, M., Guan, Y., Kutum, R., Gomez-Lopez, N., Done, B., Bhatti, G., Yu, T., Andreoletti, G., Chaiworapongsa, T., **The DREAM Preterm Birth Prediction Challenge Consortium**, Hassan, S. S., Hsu, C., Aghaepour, N., Stolovitzky, G., Csabai, I., Costello, J. C. (2021). Crowdsourcing assessment of maternal blood multi-omics for predicting gestational age and preterm birth. *Cell Reports Medicine*, 2(6). doi:10.1016/j.xcrm.2021.100323
- Ichikawa, Y., Bruno, V. M., Woolford, C. A., **Kim, H.**, Do, E., Brewer, G., Mitchell, A. P. (2021). Environmentally contingent control of *Candida albicans* cell wall integrity by transcriptional regulator Cup9. *Genetics*, 218 (3). doi: 10.1093/genetics/iyab075
- Tao, Y., Rajaraman, A., Cui, X., Cui, Z., Chen, H., Zhao, Y., Eaton, J., **Kim, H.**, Ma, J., Schwartz, R. (2021). Assessing the Contribution of Tumor Mutational Phenotypes to Cancer Progression Risk. *PLOS Computational Biology*, 17(3).

doi:10.1371/journal.pcbi.1008777

He, B., Gao, P., Ding, Y., Chen, C., Chen, G., Chen, C., **Kim, H.**, Tasian, S. K., Hunger, S. P., Tan, K. (2020). Diverse noncoding mutations contribute to deregulation of cis-regulatory landscape in pediatric cancers. *Science Advances*, 6(30). doi:10.1126/sciadv.aba3064

Lin, C., Jain, S., **Kim, H.**, Bar-Joseph, Z. (2017). Using neural networks for reducing the dimensions of single-cell RNA-Seq data. *Nucleic Acids Research*, 45(17). doi:10.1093/nar/gkx681

PREPRINT

Tao, Y., Rajaraman, A., Cui, X., Cui, Z., Eaton, J., **Kim, H.**, Ma, J., Schwartz, R. (2019). Improving personalized prediction of cancer prognoses with clonal evolution models. *bioRxiv*. doi:10.1101/761510

Presentations

* *presenting author*

CONTRIBUTED PRESENTATIONS

Kim, H.*, Kosakovsky Pond, S. L. (2022). PRIME Evolutionary Imputation (PREI). Flash Talk: International Conference on Intelligent Biology and Medicine, Philadelphia, PA.

Kim, H.*, Shank, S., Kosakovsky Pond, S. L. (2022). PProperty Informed Models of Evolution (PRIME). Poster: The 31st KSEA Northeast Regional Conference, Hybrid.

Hu, Y., Chen, C., Ding, Y., **Kim, H.**, Tan, K. (2019). Synergistic Control Genes in Cancer Gene Networks as Targets for Combination Therapy. Poster: Children's Hospital of Philadelphia Research Poster day and Scientific Symposium, Philadelphia, PA.

Awards, Fellowships, & Grants

2022	Selected Attendee Support , Scientists and Engineers Early Career Development Workshop	\$ 200
2022	KSEA Excellent Poster Award , The 31st KSEA Northeast Regional Conference	\$ 100
2022	CST Three-Minute Thesis Competition 2nd Place Award , Temple University	\$ 250
2015	Departmental Merit Fellowship , Carnegie Mellon University	\$ 3000
2013	Mellon College of Science Research Honors , Carnegie Mellon University	
2012	Summer Undergraduate Research Fellowship , Carnegie Mellon University	\$ 3500

Doctoral Coursework

F2022	EPSY-8985 Teaching in Higher Education
F2020	BIOL-5128 Genomics and Infectious Disease Dynamics
F2020	BIOL-8210 Seminar: "Ecoevo discuss"
F2020	STAT-8109 Applied Statistics and Data Science
S2020	BIOL-5241 Genomics and Evolutionary Biology of Parasites
S2020	CIS-5517 Data-Intensive and Cloud Computing
S2020	CIS-5523 Knowledge Discovery and Data Mining
F2019	BIOL-5111 Genomics in Medicine
F2019	BIOL-5466 Topics in Bioinformatics
F2019	BIOL-8210 Seminar Biol 8210 at Center for Computational Genetics and Genomics

Teaching Experience

* *awarded Research Assistantship unless otherwise noted*

F2020 BIOL-3111/5111 Genomics in Medicine, Teaching Assistant
S2020 BIOL-1012 General Biology II, Teaching Assistant
F2019 BIOL-2112 Introduction to Cellular and Molecular Biology, Teaching Assistant

Outreach & Professional Development

LEADERSHIPS

College of Science and Technology-Graduate Student Organization (CST-GSO), DEI Representative, 12/2021-
College of Science and Technology Diversity, Equity, and Inclusion Committee, Student Representative, 11/2021-
Biology Graduate Student Society (BGSS), Vice President, 09/2021-

PROFESSIONAL MEMBERSHIPS

Korean-American Innovative Technology Engineers and Entrepreneurs (KITEE), 04/2022-
Society for the Study of Evolution (SSE), 04/2022-
AnitaB.org, 09/2021-
Society for Molecular Biology and Evolution (SMBE), 01/2021-
Korean-American Scientists and Engineers Association (KSEA), 02/2020-
Philadelphia Korean Scholars Association (PKSA), 06/2019-

COMMUNITY INVOLVEMENT

Frontiers in Oncology, Ad Hoc Reviewer (1x/yr), 06/2022
George Washington Carver Science Fair, Science Fair Judge, 03/2022

CERTIFICATES

Cancer Biology Specialization, Coursera 2022
Matrix Algebra for Engineers, Coursera 2022
Viruses and How to Beat Them: Cells, Immunity, Vaccines, IsraelX 2022

Coding Languages

PYTHON, R, MATLAB, BASH, JAVASCRIPT, GOLANG