HANNAH KIM, M.S.

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WHO AM I?

- A passionate researcher seeking a postdoctoral position starting in Fall 2026.
- A community builder who is good at initiating and facilitating collaborations.
- An academic hybrid with a strong desire to foster an inclusive interdisciplinary learning environment.
- Research interests in bioinformatics, human-computer interaction, and interdisciplinary learning.

EDUCATION

PhD in Bioinformatics, Temple University 2019 - present
Advisor, Bioinformatics: Dr. Sergei L Kosakovsky Pond
Co-Advisor, Human-Computer Interaction (HCI): Dr. Stephen MacNeil
Dissertation Topic: Harnessing interdisciplinarity in the investigation of nucleotide sequence evolution

MS in Computational Biology, Carnegie Mellon University 2015 - 2016
Relevant Coursework: Computational Genomics, Machine Learning, and Algorithms & Advanced Data Structures

BS in Chemistry, Carnegie Mellon University 2010 - 2013
Relevant Coursework: Principles of Computing, and Modern Analytical Instructions

MAJOR CERTIFICATES

08/2023 **Teaching in Higher Education Certificate** *Temple University - Center for the Advancement of Teaching*
08/2023 **MicroMBA** *University of California, San Diego Extended Studies - Rady School of Management*

PUBLICATION

[P3] Kim, H., Nabid, R. A., Sorathiya, J., Doan, M., Jordan, E., Nasimova, R., Kosakovsky Pond, S. L., MacNeil, S. (2026). Changing the Optics: Comparing Traditional and Retrieval-Augmented GenAI E-Tutorials in Interdisciplinary Learning. *arXiv*, 1-16. doi:10.48550/arXiv.2602.20544
- [Traditional E-Tutorial on HyPhy methods FEL, aBSREL, and BUSTED | GenAI E-Tutorial Code | Task Scenario]

[C2] Auer, S., Betz, D., Biniossek, C., Jacyszyn, A., Jiomekong, A., **Kim, H.**, McGinty, H.K., Mills, K.G., Oelen, A., Rabby, G. and Rajabi, E. (2026). Proceedings of the 2nd AAAI Bridge on Artificial Intelligence for Scholarly Communication. *Open Conference Proceedings*, 8. doi:10.52825/ocp.v8i.3212

[P2] Jiomekong, A., McGinty, H. K., Mills, K. G., Oelen, A., Rajabi, E., McElroy, H., Christou, A., Saini, A., Zebaze, J. A., **Kim, H.**, Jacyszyn, A. M. (2025). Charting the future of scholarly knowledge with AI: A community perspective. *arXiv*, 1-39. doi:10.48550/arXiv.2509.02581

[C1] Kim, H., Kosakovsky Pond, S. L., MacNeil, S. (2025). Conversations over Clicks: Impact of Chatbots on Information Search in Interdisciplinary Learning. *2025 IEEE Frontiers in Education Conference (FIE)*, 1-9. doi:10.1109/FIE63693.2025.11328556
- FIE 2025 [Preprint | Teasers | Slide | Video | Recap]

[**W2**] **Kim, H.**, Kosakovsky Pond, S. L., MacNeil, S. (2024). WIP: Identifying Tutorial Affordances for Interdisciplinary Learning Environments. *2024 IEEE Frontiers in Education Conference (FIE)*, 1-5. doi:10.1109/FIE61694.2024.10893187
- FIE 2024 [Preprint | Slide | Video | Recap]

[**W1**] **Kim, H.** (2023). Running a summer journal club for an interdisciplinary community: how to maintain engagement when members have disparate prior knowledge. *The Journal for Research and Practice in College Teaching*, 8(2). https://journals.uc.edu/index.php/jrpct/article/view/8150/6710

[**J7**] 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

[**J6**] 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

[**J5**] 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., Aghaeepour, 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

[**J4**] 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

[**J3**] 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

[**J2**] 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

[**P1**] 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

[**J1**] 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

PRESENTATION

Posters

- Ahmed, M., Kashyap, D., **Kim, H.**, Duy, C. (2025, April 25-30). *DNMT1 promotes escape from chemotherapy-induced senescence in acute myeloid leukemia* [Abstract]. In Proceedings of the 116th Annual Meeting of the American Association for Cancer Research. Chicago, IL: AACR. Abstract nr 0293 / 2.
- **Kim, H.*** (2024). *It Takes a Village: Understanding the Community Aspects of Interdisciplinary Tutorials* Poster: 2024 ASEE/IEEE Frontiers in Education Conference, Washington, D.C.
- **Kim, H.***, Kosakovsky Pond, S. L. (2023). *PRSuite: PRoperty Informed Models of Evolution (PRIME), the Imputation (PREI), and the Visualization (PReC).* Poster: The Society for Molecular Biology and Evolution 23 Conference, Ferrara, Italy.
- **Kim, H.***, Shank, S., Kosakovsky Pond, S. L. (2022). *PRoperty Informed Models of Evolution (PRIME).* Poster: The 31st KSEA Northeast Regional Conference, Virtual.

- 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.

Talks

- **Kim, H.*** (2024). *Characterization of Disciplinary Hybridization in Bioinformatics Software Tutorials.* Seminar: Philadelphia Korean Scholars Association, Philadelphia, PA.
- **Kim, H.*** (2023). *Using HyPhy package on comparative sequence analysis*. Workshop: Temple Bioinformatics Studio, Philadelphia, PA.
- **Kim, H.*** (2023). *Data Analysis in Bioinformatics Research (in academia).* Seminar: Philadelphia Developer Group, Virtual.
- **Kim, H.***, Kosakovsky Pond, S. L. (2022). *PRIME Evolutionary Imputation (PREI).* Flash Talk: International Conference on Intelligent Biology and Medicine, Philadelphia, PA.

TEACHING EXPERIENCE

Client Jan 2025 - Apr 2025
Temple University *Projects In Computer Science (CIS-4398)*

- Provided feedback to a project as a client in Professor Ian Tyler Applebaum's senior capstone class for 6 weeks [Class Website | Team Documentation Website | Client Pitch | Project Final Demo].
- Team size: 7.

Co-Coordinator/Reflective Practicum Completion for THE Certificate May 2023 - July 2023
Temple University *Deep Learning for the Life Sciences Journal Club*

- Co-organized a 10-week summer journal club with Dr. Enzo Carnevale for researchers of diverse levels of expertise (undergraduate students, graduate students, postdocs, alumni, visitors, and professors).
- Built a unique inter-departmental community in the College of Science and Technology.
- Discussed teaching methods and reflections with Dr. Jay Lunden (reflective practicum mentor) for 7 weeks.
- Wrote a [W1] Personal Narrative of Works in Progress based on this experience.
- Group size: 35.

Course Completion for Teaching in Higher Education (THE) Certificate Aug 2022 - Dec 2022
Temple University *Teaching in Higher Education (EPSY-8985)*

- Developed syllabi, assignments, and assessments using the principles of integrated course design.
- Applied the current theories of teaching in different contexts.
- Used a variety of effective teaching methods to address learners universally.
- Discussed a reflective and purposeful approach to teaching with other instructors.

Teaching Assistant Aug 2020 - Dec 2020
Temple University *Genomics in Medicine (BIOL-3111/5111)*

- Generated formative and summative assessment materials and provided timely feedback (Youtube/Introduction).
- Class size: 150.

Teaching Assistant Aug 2019 - May 2020
Temple University *Wet Lab Courses (BIOL-2112 and BIOL-1012)*

- Gave a short lecture in the beginning of every lab, monitored student performance, and provided guidance.
- Graded lab reports and generated quizzes.
- Class size: 20 ($\times$ 2 sections) each.

- BIOL-1012 General Biology II, Spring 2020 was an introductory wet lab course for non-biology majors.
- BIOL-2112 Introduction to Cellular and Molecular Biology, Fall 2019 was a lab for biology majors.

Course Developer Feb 2016 - Aug 2016
Carnegie Mellon University *Programming for Scientists (02201/02601)*

- Generated open-source course materials (codes and instructions) with Drs. Phillip Compeau and Carl Kingsford for Go-lang beginners.

TUTORIAL

[T2] Kim, H. [Hannah Kim in Comp Bio]. (2025, May 28). *#summer2025 #hci [Research Project Teaser] Bioinformatics Software Tutorial Supporting Chatbot* [Video]. YouTube. https://youtu.be/cfTl6e58DPU
[T1] Kim, H. [GalaxyProject]. (2024, Sep 13). *GTN Tutorial: Chloroplast Genome Assembly* [Video]. YouTube. https://youtu.be/gIcbY9kXdTo?si=FrJLLLb0aWNOk-Ck

PROFESSIONAL EXPERIENCE

Project Lead Feb 2024 - present
Temple University ACME Group & Temple University HCI lab *Philadelphia, PA*

- Identified gaps in knowledge and proposed ideas that can make data and method work together.
- Reconciled different research interests of stakeholders involved.
- Designed a user study, drafted a protocol approved by the institutional review board, and ran the study.
- Wrote a [P3] Preprint about the strengths and limitations of GenAI when used as an e-tutorial.
- Team: SP (01/2025-05/2025 & 09/2025-present; HP (05/2025-present); RN (05/2025-present); EJ (05/2025-present); JS (01/2025-present); RAN (01/2025-present); KB (01/2025-05/2025); MD (01/2025-05/2025)

Bioinformatics Engineer Oct 2021 - Jan 2022
Lifetime Omics *Remote*

- Automated cutting-edge methods and analyzed COVID-19 metagenomics data in the Google Cloud environment.
- Developed detailed standard operating procedure for reproducibility.
- Took initiatives to solve problems and demonstrated dedication for the project in the startup environment.

Bioinformatics Analyst/Software Engineer Jul 2017 - Jun 2019
Children's Hospital of Philadelphia – Kai Tan lab *Philadelphia, PA*

- Investigated RNA-Seq and microarray data from B-Cell Acute Lymphoblastic Leukemia subtypes using differential gene expression analysis, Gene Ontology enrichment analysis, and other relevant bioinformatics methods.
- Identified cancer-specific genetic interactions that led to publications in high-impact journals.
- Facilitated communication in the interdisciplinary environment of doctors and wet-lab and dry-lab researchers.

Research Programmer Feb 2017 - Jun 2017
Carnegie Mellon University – Russell Schwartz lab *Pittsburgh, PA*

- Investigated clinical and genomic data to create a cancer progression analysis pipeline using machine learning.

MS Graduate Researcher Jan 2016 - Dec 2016
Carnegie Mellon University – Ziv Bar-Joseph lab *Pittsburgh, PA*

- Curated and analyzed single-cell gene expression data.

Post-Baccalaureate Researcher (Chemistry/Biology) Aug 2013 - Jun 2014
Carnegie Mellon University – Drs. Fred Lanni, Aaron Mitchell, and Luisa Hiller *Pittsburgh, PA*

- Tested various polymer surface coatings for the prevention and destruction of biofilms using red/NIR light.

Undergraduate Student Researcher (Chemistry) Jan 2012 - Aug 2013
Carnegie Mellon University – Kevin Noonan lab *Pittsburgh, PA*

- Characterized pyrylium and pyridinium salts by modifying functional groups.

Student Researcher (Biology) Jun 2011 - Aug 2011
Carnegie Mellon University – 2011 Summer Research Institute *Pittsburgh, PA*

- Analyzed interactions among three ribosomal assembly factors in *Saccharomyces cerevisiae*.
- 1 of 12 student researchers selected for the program.

AWARDS, FELLOWSHIPS, & GRANTS

2023 Best Poster Award, 2nd Place (Computer and Information Sciences), The 36th US-Korea Conference

2022&2023 Selected Attendee Support, Scientists and Engineers Early Career Development Workshop

2022 KSEA Excellent Poster Award, The 31st KSEA Northeast Regional Conference

2022 CST Three-Minute Thesis Competition 2nd Place Award, Temple University (College-level)

2015 Departmental Merit Fellowship, Carnegie Mellon University

2013 Mellon College of Science Research Honors, Carnegie Mellon University

2012 Summer Undergraduate Research Fellowship, Carnegie Mellon University

UNIVERSITY SERVICE

Panelist Oct 2024 - Aug 2025

- CST Graduate Orientation, 08/2025, Graduate Admissions Team in College of Science and Technology
  - Shared graduate school tips and tricks with the new graduate students.
- Publishing Journal Articles: A Panel Discussion, 10/2024, Temple University Graduate School
  - Served as one of four panelists. Shared my solo- and first-author experiences with graduate students across the community.

College of Science and Technology-Graduate Student Organization Board Member Dec 2021 - May 2024

- **Media Chair** May 2023 - May 2024
  - Advertised the organization events on social media. Communicated with members from different departments. Supported organization social events and generated flyers.
  - Organized Graduate Student Fall and Spring social events each with 30+ attendees with the board members.
- **DEI Representative** Dec 2021 - Apr 2023
  - Identified potential DEI topics within the organization and suggested appropriate strategies.
  - Facilitated the success of the yearly PhD/MS alumni panelist event involving all six departments within college for two years in a row.

Student Representative Nov 2021 - Aug 2023
Temple University College of Science and Technology Diversity, Equity, and Inclusion (CST-DEI) Committee

- Discussed the promotion of DEI within college at the bi-weekly committee meetings.
- Provided feedback for a wide array of DEI topics and addressed current issues with other members.

Vice President Sep 2021 - Sep 2023
Temple University Biology Graduate Student Society (BGSS)

- Facilitated communication between the department and the graduate school.
- Evaluated travel grant applications with the president and the treasurer.
- Led action plans to address diverse career needs within the department of biology and organized regular meetings with the graduate school directors.
- Generated databases for student placements after graduation.
- Supported the on-boarding process for the first-year students in the department of biology.
- Planned and oversaw activities for the Fall 2022 departmental retreat.

LEADERSHIP EXPERIENCE

Education Standards Committee Nov 2025 - present
P3722 IEEE Standard Guide for Responsible AI in Higher Education

- Member of the working group P3722. Member of the subgroups (1) Overview and Guiding Principles, (2) Educator Development and (3) Institutional Collaboration.
- As a member of the working group, gathered every month to discuss the progress of the standard.
- As a member of the three subgroups, discussed the purpose and scope and identified areas to be studied further.

Bridge Organizing Committee Sep 2025 - Jan 2026
2nd AI for Scholarly Communication (AI4SC) - the 40th Annual AAAI Conference on Artificial Intelligence (AAAI-26)

- Contributed to the program document drafts, generated recruitment materials, and attended bi-weekly meetings.
- Co-managed bridge submissions as an editor on the TIB Open Conference Proceedings platform.

Alumni Network Leader Apr 2025 - present
Carnegie Mellon University Philadelphia Network

- Hosted local events (Globally Plaid Recap, Sep 2025) for the alumni and affiliates.

KITEE Leadership Jan 2023 - present

- **Young Generation Director I (PhD level)** Aug 2025 - present
  - Supported organizing KITEE events and promoting membership drive.
- **The 33rd KSEA NRC Steering Committee Member & PR Director** Jan 2024 - Apr 2024
  - Planned the conference in the weekly committee meeting with PIs and staff from academia and industry.
  - Discussed conference planning with other members; an emphasis on diversity and inclusion (i.e. accessibility & childcare support).
  - Supported onsite facilitation on the day of event with >80 attendees.
- **Event Director** Oct 2023 - Dec 2024
  - Connected with graduate students in the northeast region in the US to promote KITEE events.
  - Brainstormed ideas during event meetings and supported all registration-related endeavors.
  - Organized KITEE Entrepreneurship Forum 2023 (>80 attendees) as part of the committee.
- **The 2023 KITEE-FELIX Hackathon Committee Secretary** Feb 2023 - Apr 2023
  - Organized the hackathon in the weekly committee meeting.
  - Reached out to universities and engineer communities in the Philadelphia region.
  - Supported the onsite activities.

- **The 32nd KSEA NRC Committee Philadelphia Young Generation Director** Jan 2023 - Apr 2023
  - Planned the Northeast Regional Conference (NRC) conference in the bi-weekly committee meeting with PIs and staff from academia and industry.
  - Operated as the public relations and promotion chief for the pre-networking event before the conference.
  - Promoted networking (e.g. networking bingo) and facilitated the event flow onsite (104 registrants).

COMMUNITY INVOLVEMENT

Ad Hoc Reviewer

- Virus Evolution (2024 IF=4.0), *01/2026*
  - Commented as a reviewer using knowledge in virus evolution and bioinformatics.
- 2026 IEEE Global Engineering Education Conference (EDUCON) TPC, *12/2025*
  - Reviewed two full papers (2) and provided detailed feedback on machine learning models, including GenAI.
- Virus Evolution (2024 IF=4.0), *11/2025*
  - Commented as a reviewer drawing on the experience in evolutionary biology.
- 2025 IEEE Frontiers in Education Conference (FIE) Technical Program Committee (TPC), *04/2025*
  - Reviewed and provided feedback on full papers (2), each with a strong focus on statistics and algorithms.
- 2025 IEEE Global Engineering Education Conference (EDUCON) TPC, *11/2024*
  - Reviewed and provided feedback on full papers (3) about Multidisciplinary and Transdisciplinary Education.
- 2024 IEEE Frontiers in Education Conference (FIE) Technical Program Committee (TPC), *07/2024 & 03/2024*
  - Reviewed and provided feedback on FIE conference abstracts (3) & papers (2).
- Temple University CST Diversity Innovation Initiative (DII) Fund, *03/2024*
  - Scrutinized the funding proposals and provided feedback to the DII committee.
- Scientific Reports (2021 IF=4.996), *04/2023*
  - Commented as a reviewer using the experience in cancer, evolutionary biology and single-cell transcriptomics.
- Frontiers in Oncology (2021 IF=5.738), *06/2022*
  - Commented as a reviewer for an academic journal using my experience in cancer research and bioinformatics.

Science Fair Judge

- George Washington Carver Science Fair, *03/2025, 04/2024, 03/2023 & 03/2022*
  - Judged science fair projects done by students in grades 4 and 5 (04/2024) and grades 6 to 12 (03/2025, 03/2022 & 03/2023) with a group of educators.
  - Judged Behavior and Social Sciences category in 03/2025.

PROFESSIONAL MEMBERSHIPS

- **Knowledge Knocking for Your Universe (KKYU)**, *05/2025-present*
- **PhillyCHI**, *01/2025-present*
- **Galaxy Training Network Contributor**, *07/2024-present*
- **Temple Asian American and Pacific Islander (AAPI) Faculty & Staff Affinity Group**, *02/2024-present*
- **Korean-American Women in Science and Engineering (KWiSE)**, *08/2023-present*
- **Philadelphia Developer Group**, *04/2023-present*
- **An Affiliate Member of Temple University Human-Computer Interaction (HCI) Lab**, *03/2023-present*
- **Collab with researchers from Fox Chase Cancer Center at Temple University Hosp.**, *12/2022-11/2024*

- **Collab with (current and previous) researchers from Institute for Genomics and Evolutionary Medicine at Temple University,** *08/2022-11/2024*
- **Korean American Society in Biotech and Pharmaceuticals (KASBP),** *10/2022-07/2024*
- **Korean-American Innovative Technology Engineers and Entrepreneurs (KITEE),** *04/2022-present*
- **AnitaB.org**, *09/2021-present*
- **Korean-American Scientists and Engineers Association (KSEA)**, *02/2020-present*
- **Rotations in Zoran Obradovic, Sergei L. Kosakovsky Pond, and Sudhir Kumar Labs**, *08/2019-05/2020*
- **Philadelphia Korean Scholars Association (PKSA)**, *06/2019-present*

DOCTORAL COURSEWORK

Fall 2020 **Genomics and Infectious Disease Dynamics** *BIOL-5128*
Fall 2020 **Seminar: "Ecoevo discuss"** *BIOL-8210*
Fall 2020 **Applied Statistics and Data Science** *STAT-8109*
Spring 2020 **Genomics and Evolutionary Biology of Parasites** *BIOL-5241*
Spring 2020 **Data-Intensive and Cloud Computing** *CIS-5517*
Spring 2020 **Knowledge Discovery and Data Mining** *CIS-5523*
Fall 2019 **Genomics in Medicine** *BIOL-5111*
Fall 2019 **Topics in Bioinformatics** *BIOL-5466*
Fall 2019 **Seminar Biol 8210 at Center for Computational Genetics and Genomics** *BIOL-8210*

MASSIVE OPEN ONLINE COURSE CERTIFICATES

11/2022 **The Inclusive STEM Teaching Project** *InCLU1x*
10/2022 **Business Foundations** *UBCx*
09/2022 **Cancer Biology Specialization Courses** *Coursera*
03/2022 **Matrix Algebra for Engineers** *Coursera*
02/2022 **Viruses & How to Beat Them: Cells, Immunity, Vaccines** *IsraelX*

PERSONAL PROJECTS

- **HearU: Bridging the Gap in Korean-American Mental Health Care,** Voted "Second Place" by the audience in the KITEE-FELIX Ideathon Pitch. Ideated by PhD students each from NJIT, Penn, and Temple., *04/2023*
- **Colorblindness Image Enhancer,** "Most Technically Impressive" in OwlHacks 2023, *02/2023*

MEDIA APPEARANCES

- **Graduate Student Spotlight by Temple University Center for the Advancement of Teaching,** My unique publication experience during the reflective practicum for the Teaching in Higher Education Certificate was spotlighted on the Center for the Advancement of Teaching web page in Summer 2024., *05/2024*
- **Graduate Student Feature by Temple University Graduate School,** 1 of 12 graduate students at Temple University to be featured on the Graduate School web page and social media in Spring 2024. It was a great opportunity to share my research and show gratitude for the opportunities I got at Temple., *02/2024*

CODING LANGUAGES

python, R, MATLAB, bash, JavaScript, Go-lang

Last Updated – 2026-02-26.