Kewalin Samart

PhD Candidate in Computational Bioscience
Computational Biology | Method Development | Machine Learning | Host-Directed Drug Repurposing
kewalin.samart@cuanschutz.edu | github.com/KewalinSamart | linkedin.com/kewalinsamart

Education

University of Colorado Denver, Anschutz Medical Campus (CU Anschutz) Aurora, CO
Doctor of Philosophy in Computational Bioscience Aug 2022 – present

- Thesis Advisors: Dr. Janani Ravi and Dr. Arjun Krishnan
- C. Werner and Kitty Hirs Fellowship
- Coursework: Methods and Tools in Biomedical Informatics, Research Methods in Biomedical Informatics, Machine Learning for Biomedical Applications, Statistics for Basic Sciences, Neural Networks and Deep Learning

Michigan State University (MSU) East Lansing, MI
Bachelor of Science in Computational Mathematics *Degree Awarded* May 2022
Minor in Computational Math, Science, and Engineering

- High Honor (Summa Cum Laude)
- McCartney Math Award, L.C. Plant Math Award, College of Natural Science Scholar
- Cumulative GPA: 3.98/4.00; Major GPA: 4.00/4.00
- Dean's Honor List: Fall 2018 – Spring 2022
- Royal Thai Government Scholarship Recipient 2017

Skills

- **Programming languages:** R, Python, Shell, C++, TeX
- **Computational Tools:** Git, vi, Terminal, Unix/Linux, High-performance/ Cluster computing, LaTeX

Publications

- **Kewalin Samart****, Phoebe Tuyishime**, Arjun Krishnan*, Janani Ravi*. Reconciling multiple connectivity scores for drug repurposing. *Briefings in Bioinformatics* (2021) doi.org/10.1093/bib/bbab161. GitHub: https://github.com/jravilab/connectivity_scores Live doc: https://jravilab.github.io/connectivity_scores
- Janani Ravi*, **Kewalin Samart**, Jason Zwolak. Modeling the START transition in the budding yeast cell cycle. *PLOS Computational Biology* (2024) doi.org/10.1371/journal.pcbi.1012048. Online simulator: http://sbmlsimulator.org/simulator/by-start

Preprints

- **Kewalin Samart**, Ling Thang, Landon Buskirk, Amy Tonielli, Arjun Krishnan*, Janani Ravi*. Integrative transcriptome-based drug repurposing in tuberculosis. *bioRxiv (2025)*. doi.org/10.1101/2025.06.02.657296

**co-primary authors; *corresponding authors.

Conferences, meetings, workshops, seminars

Oral presentations

Extramural

- 2025 Great Lakes Bioinformatics Conference (GLBIO), the University of Minnesota, Minneapolis, MN, May 2025. Contributed Talk. *SigMatch: a transcriptome-based regression method to detect mechanistic links across diseases and drugs.*

- 2024 Quantitative Cell and Molecular Biology (qCMB) Symposium. Colorado State University, Fort Collins, CO, Jun. 18, 2024. Contributed Talk. *Leveraging transcriptomic disease- and drug signatures towards identifying novel host-directed therapeutics for tuberculosis.*
- R workshop at Global Alliance for Rapid Diagnostics (GARD). Virtual, Mar. 21, 2023. Presentation material: https://github.com/jananiravi/R_intro. *Introduction to R programming*.
- 2nd Latin American Congress of Women in Bioinformatics and Data Science (WBDS LA). Virtual, Sep. 23, 2021. Contributed Talk. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 29th Conference on Intelligent Systems for Molecular Biology and the 20th European Conference on Computational Biology (ISMB/ECCB). Virtual, Jul. 25, 2021. Contributed Talk. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- R-Ladies Pune. Virtual, May. 9, 2021. Presentation material: https://github.com/KewalinSamart/Rladies-lightning-talk-distill. Lighting Talk. *Distill-flavoured R Markdown for Scientific Manuscripts.*
- *Repurposing drugs for diseases. The Sci-Files on Impact 89FM Episode 11 Season 6, Aug. 1, 2021.* Podcast: https://impact89fm.org/101365/podcasts/the-sci-files-08-01-2021-kewalin-samart-repurposing-drugs-for-diseases/

Intramural

- 2025 CU Anschutz Three-minute Thesis (3MT) Competition. University of Colorado Anschutz Medical Campus, Aurora, CO. Dec. 08, 2025. *Drug repurposing for tuberculosis (TB): Learning from modern diseases.* Recording (coming soon)
- Computational Bioscience Program Seminars. CU Anschutz, Aurora, CO. Dec. 3, 2025. Research Updates. *SigMatch: a regression-based approach to detect mechanistic links across diseases and drugs.*
- 2025 CU Department of Biomedical Informatics Annual Retreat. University of Colorado Anschutz Medical Campus, Aurora, CO. Aug. 26, 2025. Lightning Talk. *SigMatch: a regression-based approach to detect mechanistic links across diseases and drugs.*
- R-Ladies Aurora Spring 2025 Workshop Series. CU Anschutz, Aurora, CO. Feb. 18, 2025. 1.5-hours hands-on workshop. Presentation materials: https://github.com/rladies-aurora/202502-Python-in-R. *Python in R*.
- 2024 CU Department of Biomedical Informatics Annual Retreat. Denver Botanical Gardens, Denver, CO. Aug. 27, 2024. Lightning Talk. *SigMatch: Mechanism-guided drug repurposing in infectious diseases.*
- Computational Bioscience Program Seminars. CU Anschutz, Aurora, CO. Jan. 22, 2025. Comprehensive Exam. *Unraveling disease-specific signatures towards identifying host-directed therapeutics for infectious diseases.*
- Computational Bioscience Program Seminars. CU Anschutz, Aurora, CO. May. 6, 2024. Research Updates. *Unraveling disease-specific signatures towards identifying host-directed therapeutics for infectious diseases.*
- CU Department of Biomedical Informatics Seminars. CU Anschutz, Aurora, CO. May. 6, 2024. Lightning Talk. *SigMatch: Mechanism-guided drug repurposing in infectious diseases using machine learning + host-response approaches.*

Posters

Extramural

- 2024 Computational Systems for Integrative Genomics. Flatiron Institute, New York, NY, Jul. 17–18, 2024. *Leveraging transcriptomic disease- and drug signatures towards identifying novel host-directed therapeutics for tuberculosis.*
- 2023 Genome Informatics Conference. Cold Spring Harbor Laboratory, Woodbury, NY, Dec. 6–9, 2023. *Integrating multiple transcriptome-based methods to repurpose drugs for infectious diseases.*

- Intelligent Systems for Molecular Biology, ISMB 2022, International Society for Computational Biology flagship conference. Virtual, Jul. 11 – 12, 2022. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 2nd Latin American Congress of Women in Bioinformatics and Data Science (WBDS LA). Virtual, Sep. 22 – 24, 2021. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 29th Conference on Intelligent Systems for Molecular Biology and the 20th European Conference on Computational Biology (ISMB/ECCB). Virtual, Jul. 25 – 30, 2021. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 2021 Great Lakes Bioinformatics Conference (GLBIO). Virtual, May 10 – 13, 2021. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*

Intramural

- 2025 CU Department of Biomedical Informatics Annual Retreat. University of Colorado Anschutz Medical Campus, Aurora, CO. Aug. 26, 2025. *SigMatch: a regression-based approach to detect mechanistic links across diseases and drugs.*
- 2023 Department of Biomedical Informatics Annual Retreat. CU Anschutz, Aurora, CO, Aug. 29, 2023. *Integrating multiple transcriptome-based methods to repurpose drugs for infectious diseases.*
- Colorado Immunology and Microbiology conference. Vail, CO, Sep. 24 – 26, 2022. *Integrating multiple transcriptome-based methods to repurpose drugs for infectious diseases.*
- 2021 Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE). Virtual, Jul. 28, 2021. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 2021 University Undergraduate Research and Arts Forum (UURAF). Virtual, Apr. 15 – 19, 2021. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*
- 2020 Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE). Virtual, Aug. 10, 2020. *Reconciling Multiple Connectivity Scores for Drug Repurposing.*

Peer reviews

Peer-reviewed computational drug repurposing manuscripts for *PLOS ONE* and *Bioinformatics*.

Fellowships, honors, awards

- Mar 2025 — Travel Fellowship
  Great Lakes Bioinformatics Conference 2025, Minneapolis, Minnesota, USA
- Aug 2022 — C. Werner and Kitty Hirs Fellowship
  University of Colorado Denver, Graduate School
- Mar 2022 — Rasmussen Graduate Recruitment Award
  Michigan State University *(declined award)*
- Mar 2022 — College of Engineering Distinguished Scholarship for Graduate Studies
  Michigan State University *(declined award)*
- Mar 2022 — The Graham and Braddock awards
  Pennsylvania State University *(declined award)*
- May 2022 — High Honor (Summa Cum Laude)
  Michigan State University
- Apr 2022 — McCartney Mathematics Award
  Department of Mathematics, Michigan State University
- Oct 2021 — Fall 2021 CNS Undergraduate Research Scholarship
  College of Natural Science, Michigan State University
- May 2021 — Summer Research Scholarship, EnSURE program
  College of Engineering, Michigan State University

- Jan 2021 — Spring 2021 CNS Undergraduate Research Scholarship
  College of Natural Science, Michigan State University
- Oct 2020 — Fall 2020 CNS Undergraduate Research Scholarship
  College of Natural Science, Michigan State University
- May 2020 — Summer 2020 CNS Undergraduate Research Scholarship
  College of Natural Science, Michigan State University
- Apr 2020 — L.C. Plant Mathematics Award Scholarship
  Department of Mathematics, Michigan State University
- Jan 2020 — Spring 2020 CNS Undergraduate Research Scholarship
  College of Natural Science, Michigan State University
- Mar 2018 — Academic Excellence Award (High Honor)
  Lawrence Academy, Groton, MA
- Dec 2017 — Academic Excellence Award (Honor)
  Lawrence Academy, Groton, MA
- May 2017 — Full-ride Scholarship for undergraduate and graduate studies in the U.S.
  National Center for Genetic Engineering and Biotechnology (BIOTEC),
  Royal Thai Government, Bangkok, Thailand

Research experience

Graduate Research Assistant Jul 2023–
JRavi and Krishnan Labs; PIs: Dr. Janani Ravi and Dr. Arjun Krishnan
Department of Biomedical Informatics, CU Anschutz
Current projects:

- Integrating multiple transcriptome-based methods for drug repurposing in tuberculosis. [NIH R35 GM128765]
- Mechanism-guided drug repurposing for host-directed therapy of infectious diseases using interpretable and integrative ML. [NIH R21 AI169301]

PhD Rotation Student Mar 2023–May 2023
Zhang Lab; PI: Dr. Fan Zhang
Department of Biomedical Informatics, CU Anschutz

- Predicting drug response pathway-driven cell phenotypes in Rheumatoid arthritis using large single-cell transcriptomics.

PhD Rotation Student Jan 2023–Mar 2023
Kechris Lab; PI: Dr. Katerina Kechris
Department of Biostatistics and Informatics, CU Anschutz

- Identification of enriched pathways associated with multiple Chronic Obstructive Pulmonary Disease phenotypes.

Undergraduate Research Assistant Mar 2021–May 2022
Krishnan Lab; PI Dr. Arjun Krishnan
Department of Computational Mathematics, Science, and Engineering, MSU

- Research focus: methods and applications of transcriptome-based drug repurposing.

Undergraduate Research Assistant Dec 2019–May 2022
JRavi Lab; PI: Dr. Janani Ravi
Department of Pathobiology and Diagnostic Investigation, MSU

- Research focus: methods and applications of transcriptome-based drug repurposing and mathematical modeling.

Teaching experience

Educational Assistant Spring 2024
Computational Bioscience Graduate Program, CU Anschutz
CPBS 7712: Research Methods in Biomedical Informatics
Supported student learning by assisting in classes, hosting office hours, and facilitating class discussions to promote engagement and understanding of course material.
Course director: Dr. Anne Thessen

Undergraduate Teaching Assistant Jan 2022–Apr 2022
Department of Computational Mathematics, Science, and Engineering, MSU
CMSE 202: Computational Modeling and Data Analysis II
Lead instructor: Dr. Luciano Silvestri

Mentoring

<u>High schoolers</u>

- Summer 2025 Asha Masoudi
  Phillips Exeter Academy, New Hampshire
- Summer 2025 Nyjah Munn
  DSST: Conservatory Green High School, Colorado

<u>Undergraduates</u>

- May 2025– Ling Thang
  Computer Science, University of Colorado Denver
- Oct 2023– Landon Buskirk
  Data Science, Michigan State University
- Summer 2024 Kritika Verma
  IT and Mathematical Innovations, University of Delhi
- Spring 2022 Amy Tonielli
  Biomedical Laboratory Science, Michigan State University

<u>PhD rotation students</u>

- Sep 2024–Nov 2024 Michael Opoku Ntrakwa
  Human Medical Genetics and Genomics Program, CU Anschutz.
- Dec 2024–Feb 2025 Yichi Chen
  Human Genetics and Genomics Program, CU Anschutz.

Professional services

- 2024 Computational Bioscience Program Admissions Committee
- 2023 Computational Bioscience Program Retreat Committee
- 2021–2022 the University Academic Grievance Hearing Board
  the University Academic Integrity Hearing Board
  the University Academic Appeal Board

Outreach

- June 2025 MONET: Multi Omics NETwork Analysis Workshop
  Teaching assistant for module 1: Introduction to Network Science and NHGRI/AnVIL system

- Aug 2023– Co-organizer of R-Ladies Aurora
  Plan and organize events for R-Ladies Aurora
  (over 230 members on Meetup: meetup.com/rladies-aurora/)
- Jul 2023 2023 Summer Academy, SACNAS CU Anschutz Chapter
  Helped set up program activities.
- Jul 2021 useR! 2021 The R Conference
  MaRmot. Helped provide program information to participants.
- Mar 2018 The Arc of Opportunity in North Central Massachusetts
  Cared for people with disabilities.

Professional membership

- 2021– International Society for Computational Biology (ISCB), Bethesda, MD
- 2021– Association for Women in Mathematics (AWM), Providence, RI
- 2021–2022 MSU Women in STEM, Member East Lansing, MI
- 2020–2022 Women + Data Science, Member East Lansing, MI
- 2019–2022 R-Ladies East Lansing, Member East Lansing, MI