

# Kewalin Samart

## PhD Candidate in Computational Bioscience

Computational Biology | Method Development | Machine Learning | Host-Directed Drug Repurposing

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## 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/preprints

- **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/jravidlab/connectivity\\_scores](https://github.com/jravidlab/connectivity_scores) Live doc: [https://jravidlab.github.io/connectivity\\_scores](https://jravidlab.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>
- **Kewalin Samart**, Landon Buskirk, Amy Tonielli, Arjun Krishnan, Janani Ravi. Integrating multiple transcriptome-based methods for drug repurposing in tuberculosis. *In preparation*.

\*\*co-primary authors; \*corresponding authors.

## Conferences, meetings, workshops, seminars

### Oral presentations

#### Extramural

- 2025 Great Lakes Bioinformatics Conference (GLBIO), the University of Minnesota in Minneapolis, MN, May 2025. Short 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](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>. Lightning 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*

- 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. 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*

- 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

### Private English Tutor

Summer 2022

Conducted weekly one-on-one online tutoring sessions titled "English for Communication" for a college student in Thailand, focusing on improving conversational skills and effective communication.

### 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

### Undergraduates

- 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

### PhD rotation students

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

- Aug 2023– Co-organizer of R-Ladies Aurora  
Plan and organize events for R-Ladies Aurora  
(over 150 members on Meetup: [meetup.com/rladies-aurora/](https://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
- 2018–2022 MSU Thai Student Association (ThaiSA), Member East Lansing, MI

## Personal interests, hobbies

Swimming | Singing (soprano) | Cooking/baking