

Kewalin Samart

COMPUTATIONAL BIOLOGY · METHOD DEVELOPMENT · MACHINE LEARNING · HOST-DIRECTED DRUG REPURPOSING ·

Anschutz Health Sciences Building, 1890 N Revere Ct, Aurora, CO 80045; JRavi Lab: Rm P12-6290, Krishnan Lab: Rm P12-7086

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Education

University of Colorado Denver, Anschutz Medical Campus (CU Anschutz)

Aurora, Colorado

DOCTOR OF PHILOSOPHY IN COMPUTATIONAL BIOSCIENCE

Aug 2022 – present

- Thesis Advisors: Dr. Arjun Krishnan, and Dr. Janani Ravi (co-primary)
- C. Werner and Kitty Hirs Fellowship
- Coursework: Methods and Tools in Biomedical Informatics, Research Methods in Biomedical Informatics, Machine Learning with Biomedical Applications, Statistics for Basic Sciences

Michigan State University (MSU)

East Lansing, Michigan

B.Sc. IN COMPUTATIONAL MATHEMATICS; MINOR IN COMPUTATIONAL MATH, SCIENCE, AND ENGINEERING

May 2022

- 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, 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: github.com/jravidlab/connectivity_scores](https://github.com/jravidlab/connectivity_scores); [Live doc: 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. *bioRxiv*.(2023) doi.org/10.1101/2023.11.05.564806; [Online simulator: http://sbmlsimulator.org/simulator/by-start](http://sbmlsimulator.org/simulator/by-start). *Under review at PLOS Computational Biology*.
- **Kewalin Samart**, Amy Tonielli, Arjun Krishnan, Janani Ravi. Integrating multiple transcriptome-based methods for drug repurposing in tuberculosis. *In preparation*.
^{**}co-primary authors; ^{*}corresponding authors.

Presentations

Research/Technical Talks

- R workshop at Global Alliance for Rapid Diagnostics (GARD). Virtual, Mar. 21, 2023. [Presentation material: github.com/jananiravi/R_intro](https://github.com/jananiravi/R_intro)
- 2nd Latin American Congress of Women in Bioinformatics and Data Science (WBDS LA). Virtual, Sep. 23, 2021.
- 29th Conference on Intelligent Systems for Molecular Biology and the 20th European Conference on Computational Biology (ISMB/ECCB). Virtual, Jul. 25, 2021.
- R-Ladies Pune. Virtual, May. 9, 2021. [Presentation material: github.com/KewalinSamart/Rladies-lightning-talk-distill](https://github.com/KewalinSamart/Rladies-lightning-talk-distill)

Poster Presentations

- 2023 Genome Informatics Conference. Cold Spring Harbor Laboratory, Woodbury, NY, Dec. 6–9, 2023.
- 2023 Department of Biomedical Informatics Annual Retreat. CU Anschutz, Aurora, CO, Aug. 29, 2023.
- Colorado Immunology and Microbiology conference. Vail, CO, Sep. 24 – 26, 2022.
- Intelligent Systems for Molecular Biology, ISMB 2022, International Society for Computational Biology flagship conference. Virtual, Jul. 11 – 12, 2022.
- 2nd Latin American Congress of Women in Bioinformatics and Data Science (WBDS LA). Virtual, Sep. 22 – 24, 2021.
- 2021 Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE). Virtual, Jul. 28, 2021.
- 29th Conference on Intelligent Systems for Molecular Biology and the 20th European Conference on Computational Biology (ISMB/ECCB). Virtual, Jul. 25 – 30, 2021.
- 2021 Great Lakes Bioinformatics Conference (GLBIO). Virtual, May 10 – 13, 2021.
- 2021 University Undergraduate Research and Arts Forum (UURAF). Virtual, Apr. 15 – 19, 2021.
- 2020 Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE). Virtual, Aug. 10, 2020.

Podcast Interview

- 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/](https://impact89fm.org/101365/podcasts/the-sci-files-08-01-2021-kewalin-samart-repurposing-drugs-for-diseases/)

Peer Review

Academic Journals Contributed to peer review at PLOS ONE, Bioinformatics

Honors/ Awards/ Scholarships

Aug 2022	C. Werner and Kitty Hirs Fellowship , University of Colorado Denver, Graduate School	Aurora, CO
May 2022	High Honor (Summa Cum Laude) , Michigan State University	East Lansing, MI
Apr 2022	McCartney Mathematics Award , MSU Department of Mathematics	East Lansing, MI
Oct 2021	Fall 2021 CNS Undergraduate Research Scholarship , MSU College of Natural Science	East Lansing, MI
May 2021	Summer Research Scholarship , EnSURE program – MSU College of Engineering	East Lansing, MI
Jan 2021	Spring 2021 CNS Undergraduate Research Scholarship , MSU College of Natural Science	East Lansing, MI
Oct 2020	Fall 2020 CNS Undergraduate Research Scholarship , MSU College of Natural Science	East Lansing, MI
May 2020	Summer 2020 CNS Undergraduate Research Scholarship , MSU College of Natural Science	East Lansing, MI
Apr 2020	L.C. Plant Mathematics Award Scholarship , MSU Department of Mathematics	East Lansing, MI
Jan 2020	Spring 2020 CNS Undergraduate Research Scholarship , MSU College of Natural Science	East Lansing, MI
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 , BIOTEC, Royal Thai Government	Bangkok, Thailand

Research Experience

JRavi and Krishnan Labs; PIs: Dr. Janani Ravi and Dr. Arjun Krishnan Jul 2023 – present

DEPARTMENT OF BIOMEDICAL INFORMATICS, CU ANSCHUTZ Aurora, CO

- Graduate researcher
- Current projects:
 - (i) Integrating multiple transcriptome-based methods for drug repurposing in tuberculosis. [NIH R35 GM128765]
 - (ii) “TB or not TB” A data-driven approach to infer molecular signature of Mycobacterium tuberculosis infection in human.
 - (iii) Mechanism-guided drug repurposing for host-directed therapy of infectious diseases using interpretable and integrative ML. [NIH R21 AI169301]

Zhang Lab; PI: Dr. Fan Zhang Mar 2023 – May 2023

DEPARTMENT OF BIOMEDICAL INFORMATICS, CU ANSCHUTZ Aurora, CO

- PhD rotation student
- Project: Predicting drug response pathway-driven cell phenotypes in Rheumatoid arthritis using large single-cell transcriptomics.

Kechris Lab; PI: Dr. Katerina Kechris Jan 2023 – Mar 2023

DEPARTMENT OF BIostatISTICS AND INFORMATICS, CU ANSCHUTZ Aurora, CO

- PhD rotation student
- Project: Identification of enriched pathways associated with multiple Chronic Obstructive Pulmonary Disease phenotypes.

Krishnan Lab; PI Dr. Arjun Krishnan Mar 2021 – May 2022

MSU DEPARTMENT OF COMPUTATIONAL MATHEMATICS, SCIENCE, AND ENGINEERING East Lansing, MI

- Undergraduate researcher in computational biology
- Research focus: methods and applications of transcriptome-based drug repurposing.

JRavi Lab; PI: Dr. Janani Ravi Dec 2019 – May 2022

MSU DEPARTMENT OF PATHOBIOLOGY AND DIAGNOSTIC INVESTIGATION East Lansing, MI

- Undergraduate researcher in computational biology
- Research focus: methods and applications of transcriptome-based drug repurposing and mathematical modeling.

Teaching Experience

CPBS 7712: Research Methods in Biomedical Informatics Jan 2024 – May 2024

COMPUTATIONAL BIOSCIENCE PROGRAM, CU ANSCHUTZ Aurora, CO

Education assistant

CMSE 202: Computational Modeling and Data Analysis II Jan 2022 – Apr 2022

MSU DEPARTMENT OF COMPUTATIONAL MATHEMATICS, SCIENCE, AND ENGINEERING East Lansing, MI

Undergraduate learning assistant (LA) with Dr. Luciano Silvestri

Peer Mentees

Undergraduates Landon Buskirk (Oct 2023–), Amy Tonielli (2022)

University Service/ Leadership

Committee Member

COMPUTATIONAL BIOSCIENCE (CPBS) SEMINAR COMMITTEE

Aurora, CO

2023-2024 Academic Year

- Plan and coordinate recurring seminars for the CPBS graduate program.

Co-organizer

R-LADIES AURORA

Aurora, CO

August 2023–present

- Plan and organize events for R-Ladies Aurora.

Committee Member

COMPUTATIONAL BIOSCIENCE PROGRAM RETREAT

Aurora, CO

2022-2023 Academic Year

- Planned and organized the annual retreat for the Computational Bioscience graduate program.

Committee Member

A REPRESENTATIVE ON BEHALF OF MSU COLLEGE OF NATURAL SCIENCE FOR

East Lansing, MI

2021-2022 Academic Year

- the University Academic Grievance Hearing Board
- the University Academic Integrity Hearing Board
- the University Academic Appeal Board

Extracurricular/ Volunteer Activities

Aug 2023– **R-Ladies Aurora**, Co-organizer, Member

Aurora, CO

Jul 2023 **2023 Summer Academy, SACNAS at CU Anschutz**, Helped set up program activities

Aurora, CO

Jul 2021 **useR! 2021 The R Conference**, MaRmot; Helped provide program information to participants

Virtual

2021– **International Society for Computational Biology (ISCB)**, Member

Bethesda, MD

2021– **Association for Women in Mathematics (AWM)**, Member

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

Jul 2018 **Burirum Pitthayakhom School**, Assisted in the educational guidance seminar for K-12 students

Burirum, Thailand

Mar 2018 **The Arc of Opportunity in North Central Massachusetts**, Cared for people with disabilities

Fitchburg, MA

2017–2018 **Math Club**, Member

Groton, MA

2017–2018 **Stage Crews**, Member; 6 hours/week working and learning art and technician skills for stage plays

Groton, MA

2017–2018 **LA Singers (High School Choir)**, Member; Soprano

Groton, MA

Nov 2017 **Rise Against Hungers**, Assisted in cooking foods/desserts and organized fundraising tables

Groton, MA