Divya Koyyalagunta

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EDUCATION

Tri-I (Weill Cornell, Memorial Sloan Kettering, Rockefeller), New York City, NY *2021 -*
Ph.D., Computational Biology and Medicine GPA: 4.20/4.00

Duke University, Durham, NC *2014 - 2018*
Computer Science B.S., Neuroscience Minor C*um Laude,* GPA: 3.86/4.00

RESEARCH EXPERIENCE

Morris Lab, Computational and Systems Biology Program Memorial Sloan Kettering
Advisor: Quaid Morris *Jan 2022 -*

- Developing novel statistical frameworks to trace the genetic and phenotypic evolution of cancer.
- Predicting biomarkers of long-term survival in oligometastatic colorectal cancer.

Leslie Lab, Computational and Systems Biology Program Memorial Sloan Kettering
Advisor: Christina Leslie *Jul 2021 - Dec 2021*

- Developed a model that learns gene regulation in single cells using multiomics data.

Prediction Analysis Lab, Department of Computer Science Duke University
Advisor: Cynthia Rudin *May 2018 - Feb 2021*

- Developed a novel algorithm to play the game Codenames. Evaluated against ontologies and word embeddings to achieve state-of-the-art results when playing against humans.

Mooney Lab, Department of Neurobiology Duke University
Advisor: Richard D. Mooney *Mar 2015 - May 2016*

- Investigated how hereditary factors shape singing behavior and imitation in songbirds.
- Created a database that tracks all birds in the lab, which continues to be used today.

Arenkiel Lab, Jan and Dan Duncan Neurological Institute Baylor College of Medicine
Advisors: Benjamin Arenkiel, Dona Kim Murphey *Jun 2013 - Aug 2014*

- Investigated how early amyloid deposition and somatostatin cell loss in the mouse olfactory system correlate with olfactory discrimination deficits in 5xFAD mice (an Alzheimer's model mouse).

PROFESSIONAL EXPERIENCE

Apple, Inc. Sunnyvale, CA
Senior Software Engineer *Sep 2020 - Apr 2021*
Software Engineer *Aug 2018 - Sep 2020*

- Designed APIs for HealthKit framework, which is the central repository for health and fitness data across iOS and watchOS.
- Implemented support for storing and accessing electrocardiogram data in HealthKit.
- Presented at Apple's WWDC (Worldwide Developers Conference).
- Designed health features highlighted in *Forbes* and *Business Insider*.

Apple, Inc. Cupertino, CA
Software Engineering Intern *Summer 2017*

- Parallelized the system for testing software updates on all iOS, watchOS and tvOS devices, increasing speed of testing by up to 3x.
- Built a reporting UI for engineers to easily triage results.

NASA Houston, TX
Software Engineering Intern *Summer 2016*

- Implemented virus-scanning protocols for the Life Sciences Database to improve data security.

PUBLICATIONS

* indicates equal contribution
Google Scholar

Peer-reviewed publications:

Koyyalagunta, D., Ganesh, K., & Morris, Q. (2025). Inferring cancer type-specific patterns of metastatic spread using Metient. *Nature Methods* (in press). Preprint: https://doi.org/10.1101/2024.07.09.602790.

Koyyalagunta, D.*, Sun, A.*, Draelos, R. L., & Rudin, C. (2021). Playing codenames with language graphs and word embeddings. *Journal of Artificial Intelligence Research*, 71, 319-346.

Preprints:

Shi, R.*, Dalal, T.*, Fradkin, P.*, **Koyyalagunta, D.**, Chhabria, S., Jung, A., ... & Morris, Q. (2025). mRNABench: A curated benchmark for mature mRNA property and function prediction. *bioRxiv*.

Conference Proceedings:

Koyyalagunta, D., Ganesh, K., & Morris, Q. (2025). Inferring cancer type-specific patterns of metastatic spread using Metient. *Cancer Research*, 85(8_Supplement_1), 2482-2482.

PRESENTATIONS

Inferring cancer type-specific patterns of metastatic spread with Metient

American Association for Cancer Research, Chicago, IL **(Poster)** *Apr 2025*
Computational and Systems Biology Seminar, Memorial Sloan Kettering **(Talk)** *Mar 2025*
Computational Biology PhD Recruitment, Tri-I **(Talk)** *Feb 2025*
Intelligent Systems for Molecular Biology (ISMB), Montreal, Canada **(Talk)** *Jul 2024*
Cancer Engineering Department Seminar, Memorial Sloan Kettering **(Talk)** *Jul 2024*
RECOMB, Boston, MA **(Poster)** *Apr 2024*
du Vigneaud Research Symposium, Weill Cornell Medicine **(Poster)** *Apr 2024*
Anderson Cancer Symposium, Rockefeller University **(Poster)** *Sept 2023*
ICML Comp. Biology Workshop, Honolulu, HI **(Poster)** *Jul 2023*

scGraphReg: modeling gene regulation in single cells using multiomics and chromatin interactions

Machine Learning in Computational Biology (MLCB), Virtual **(Talk)** *Nov 2021*

Exploring New Data Representations in HealthKit

Apple Worldwide Developers Conference, Apple Inc. **(Talk)** *Jun 2019*

Electronic Health Records for Interpretable Machine Learning

Machine Learning Day, Duke University **(Talk)** *May 2018*
Computer Science Department Research Symposium, Duke University **(Poster)** *May 2018*

Early amyloid deposition in the anterior olfactory nucleus correlates with specific mixture discrimination deficits in 5xFAD mice.
Society for Neuroscience Conference, Washington, D.C. **(Poster)** *Nov 2014*

TEACHING EXPERIENCE

Teaching Assistant Duke University
Taught a weekly discussion section, tutored students in small groups, held office hours, graded assignments, and answered questions online for the following courses:

- Introduction to Computer Science (Fall 2016)
- Data Structures and Algorithms (Spring 2017 and Spring 2018)
- Introduction to Computational Genomics (Fall 2017)

Research Mentor

- Parker Hayashi (high school student); June 2023 - August 2024
- Manny Spanos (undergraduate student); January 2024 - July 2024
- Rebecca Murray (PhD student); April 2025 - June 2025

HONORS + AWARDS

Three Minute Thesis (3MT) Finalist *2025*
Best Graduate Student Poster Award (MSK csBio Department Retreat) *2024*
NSF Graduate Research Fellowship *2023*
Best Poster Award (International Conference on Machine Learning, Comp. Bio Workshop) *2023*
Dean's List
Awarded Fall '15*, Spring '16, Fall '16, Spring '17, Fall '17* and Spring '18.
*Indicates with Distinction (GPA in the highest 10% of undergraduates)
Phi Beta Kappa Honors Society, Duke University *2019*
iContest First Place *2017*
First place (out of hundreds) in a contest where we pitched a feature idea to a panel of VPs.
This idea is now a current iOS feature.
Duke Technology Scholar *2017*
One of 34 women selected for a Duke initiative to help close the gender gap in computer science.
Main belt asteroid named "31512 Koyyalagunta", NASA Jet Propulsion Laboratory *2014*
Awarded for accomplishments in scientific research by Intel ISEF.
First Place Grand Award Recipient, Intel International Science and Engineering Fair *2014*
Fourth Place Grand Award Recipient, Intel International Science and Engineering Fair *2012*

LEADERSHIP AND SERVICE

Duke Technology (DTech) Scholars - Alumni Executive Board Duke University
DTech is a Duke University scholarship supporting the next generation of female tech leaders, and the alumni program supports graduates in their early career stages.

President *2024 -*

- I oversee the Alumni Executive Board, managing alumni events and programming.

VP of Mentorship *2022-2024*

- I manage the nationwide mentorship program, resource guide, and alum database and connect undergraduate women with industry mentors.

Mentor *2019 -*

- I mentor undergraduate Duke women throughout the summer to help guide them through the technical and professional aspects of their tech internships.

Tri-Institutional Outreach Committee Weill Cornell/MSK
Leadership Team *2023 -*

- I help organize volunteer programs across the Tri-I, managing mentorship initiatives across hundreds of graduate students and mentees.

Heart2Heart Weill Cornell/MSK
Volunteer *2024 -*

- I serve as a patient liaison once a month for a free diabetes and cardiovascular disease outreach intervention clinic for underserved communities in New York City.

Tri-Institutional Mentor Initiative Weill Cornell/MSK
Mentor *2022 -*

- I guide students through the PhD application process, which includes helping them choose programs, reading their essays and CV, and conducting mock interviews.

BioGAP Recruitment Panel Weill Cornell
Invited panelist *2025*

Computational and Systems Biology Retreat Panel Organizer/Moderator MSK
Panel moderator *2024*

- Organized and moderated a Faculty Panel.

Computational and Systems Biology Retreat Planning Committee MSK
Committee member *2024*

- PhD student representative for department retreat planning.

Computational Biology Summer Program Admissions Committee MSK
Committee member *2024-2025*

- Evaluated undergraduate applications for the highly selective **C**omputational Biology Summer Program.

"Demystifying Graduate School Application" Panel MSK
Invited panelist *2023*

Computational Biology Summer Program "Applying to Graduate School" Panel MSK
Invited panelist *2023*

Tri-I Computational Biology and Medicine Retreat "Applying to Fellowships" Panel MSK
Invited panelist *2023*

High School Catalyst Program Weill Cornell/MSK
Mentor *Summer 2022*

- I served as a mentor for New York high school students from self-reported underrepresented backgrounds. We provide a 7-week biomedical research experience where we guide the mentee in writing their own NSF style research proposal.

Computational Biology and Medicine PhD Program Weill Cornell/MSK
Student Representative *2022-2023*

- I meet with directors of the PhD program to advocate for student concerns regarding curriculum, student well-being, and research support.

Women in Health @ Apple Apple, Inc.
Founder *2019-2021*

- I organized events to connect women across engineering and leadership. This provided a space for women to speak freely about their experiences and support one another at the company.

Duke Dhamaka (Dance Team) Duke University
Captain and Dancer *2014 – 2018*

- Led, danced and choreographed for a team of 20 dancers that competed across the U.S.

Females Excelling More in Math, Science, and Engineering Duke University
Group Leader *2016-2017*

- Taught groups of elementary and middle school aged girls basic physics, chemistry, and engineering principles through hands-on activities.

Mental Health of America Duke University
Peer support volunteer *Jan 2015 - Mar 2016*

- I met with individuals in the community who are on a path of recovery from their mental illness to offer support.

National Alliance of Mental Illness Duke University
Policy Executive *2015-2017*

- Proposed a change to the health requirements for taking academic absence to be inclusive of those with mental illnesses, which was approved by the university.

SKILLS

Python, Objective-C, SQL, iOS development, git, multithreaded application development, databases, API design, numpy, scipy, PyTorch