

Divya Koyyalagunta

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EDUCATION

Tri-Institutional PhD Program (Cornell/Weill Cornell+MSK+Rockefeller) New York City, NY

GPA: 4.00/4.00

PhD student in Computational Biology and Medicine 2021-present

- Relevant Coursework: Human Genomics, Applied Machine Learning, Deep Learning, Probabilistic Models and Machine Learning

Duke University Durham, NC

Computer Science B.S. | Neuroscience Minor

2014 - 2018

Cum Laude, GPA: 3.86/4.00, Major GPA: 3.93/4.00

- Relevant Coursework: Molecular Biology, Genetics and Evolution, Biochemistry, Linear Algebra, Probability, Computational Genomics, Intro to AI, Computer Vision

RESEARCH EXPERIENCE

Morris Lab, Computation and Systems Biology Program Memorial Sloan Kettering Cancer Center

Advisor: Quaid Morris

Jan 2022 - Present

- Developed a method using gradient based learning of discrete objects to learn the history of metastasis from patients' cancer evolution trees.
- Working on causal inference methods for mapping gene regulation in single cell data.

Leslie Lab, Computation and Systems Biology Program Memorial Sloan Kettering Cancer Center

Advisor: Christina Leslie

Jul 2021 - Oct 2021

- Developed scGraphReg, a model which learns gene regulation in single cells using multiomics and chromatin interactions.

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 knowledge ontologies like BabelNet as well as word embeddings such as word2vec and BERT 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 songbirds' propensity to sing and imitation ability, both interesting due to the parallels to human brain structures involved in the process of song learning and memorization.
- Created a database that tracks all birds in the lab and relates birds by their hereditary history, which continues to be used by the lab 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) by collecting behavioral and histological data.

PUBLICATIONS

Koyyalagunta D, Sun A, Draelos RL, Rudin C. Playing Codenames with Language Graphs and Word Embeddings. *Journal of Artificial Intelligence Research*. 2021 Jun 23;71:319-46.

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)

PROFESSIONAL EXPERIENCE

Apple, Inc.

Sunnyvale, CA

Senior Software Engineer

Aug 2018 - Apr 2021

- Designed and shipped numerous 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). Projects that I have led and implemented have been featured on 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.
- Pitched a feature demo to a panel of VPs and won first place in the iContest.

PRESENTATIONS

Machine Learning in Computational Biology (MLCB)

Virtual

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

Nov 2021

A. Karbalayghareh, **D. Koyyalagunta**, C. Leslie

Apple Worldwide Developers Conference
Exploring New Data Representations in HealthKit

Apple, Inc.
Jun 2019

Duke Machine Learning Day
Electronic Health Records for Interpretable Machine Learning. (Featured Presentation)
A. Sun, **D. Koyyalagunta**, C. Chi, R. Draelos, C. Rudin

Duke University
May 2018

Computer Science Department Undergraduate Research Symposium
Electronic Health Records for Interpretable Machine Learning. (Poster)
A. Sun, **D. Koyyalagunta**, C. Chi, R. Draelos, C. Rudin

Duke University
May 2018

Society for Neuroscience Conference
Early amyloid deposition in the anterior olfactory nucleus correlates with specific mixture discrimination deficits in 5xFAD mice. (Abstract and Poster)
D.K. Murphey, **D. Koyyalagunta**, B. Arenkiel

Washington, D.C.
Nov 2014

HONORS

NIH T32 Training Grant
The Ruth L. Kirschstein National Research Service Award (NRSA) (T32) supports grants to institutions to develop or enhance research training opportunities for pre and postdoctoral fellows to be trained in cancer research (2022).

Weill Cornell/MSK

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)

Duke University

Phi Beta Kappa Honors Society
In recognition of high attainments in liberal scholarship (2019).

Duke University

Duke Technology Scholar
One of 34 women selected for a Duke initiative to help close the gender gap in computer science (2017).

Duke University

Main belt asteroid named "31512 Koyyalagunta"
Awarded for accomplishments in scientific research by Intel ISEF (2014).

NASA Jet Propulsion Laboratory

Grand Award Recipient
First place: Role of Somatostatin Interneurons in Alzheimer's Disease (2014).
Fourth place: Utilization of Audio and Visual Prompting to Aid Dementia Patients with Daily Tasks (2012).

Intel International Science and Engineering Fair

LEADERSHIP AND SERVICE

Duke Technology Scholars Program

Duke University

VP of Mentorship

2022-present

- I manage the nationwide mentorship program, resource guide, and alum database and connect undergraduate women with Duke alumnae working in various industries.

Mentor

2019-present

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

High School Catalyst Program

Weill Cornell/MSK

Mentor

2022-present

- I serve as a mentor for New York high school students from self-reported underrepresented minority, disadvantaged, and/or first-generation immigrant backgrounds. We provide a 7-week biomedical research experience where we guide the mentee in writing their own NSF style research proposal.

Tri-Institutional Mentor Initiative

Weill Cornell/MSK

Mentor

2022-present

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

Computational Biology and Medicine PhD Program

Weill Cornell/MSK

Student Representative

2022-present

- 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 activities through hands-on activities.

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

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