RAJEE GANESAN

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EDUCATION

CARNEGIE MELLON UNIVERSITY — **Pittsburgh, PA**
Second Year Ph.D. Student in Department of Biology — **Exp. 2026/2027**

UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL — **Chapel Hill, NC**
Bachelor of Science in Quantitative Biology, Minors in Data Science and Statistics [*Cum Laude, Dean's List*] — **May 2022**

Relevant Coursework: *Italics indicate graduate level coursework*

- **Bioinformatics:** *Bioinformatics Data Practicum Genomics and Epigenetics of the Brain,* Bioalgorithms, Biostatistics
- **Computer Science:** *Practical Computing and Data Analysis*, Object-Oriented Design, Data Structures
- **Biology:** *Advanced Genetics*, Cell Biology, Molecular Biology, Evolutionary Genetics
- **Mathematics & Physics:** Vector Calculus, Decision Sciences, Statistics II, Mechanics, Electricity and Magnetism

SKILLS

Computational - *Languages*: Python, R, Bash, Java, SAS; *Tools*: JMP, Jupyter Notebooks, Vim, RMarkdown, ImageJ, Imaris, Slidebooks, ZEN, Job Managers (SLURM), Microsoft Office Products, Package management and installation
Experimental - Research Project Design, Scientific and Technical Writing, Conference Presentation, Scientific Literature Research Antibody Staining, Fluorescence and Confocal Microscopy, Cell and RNA isolation, Sequencing preparation

SELECTED EXPERIENCE

Carnegie Mellon University, Departments of Biology, Computational Biology — **Pittsburgh, PA**
Ph.D. Student in Pfenning Lab, Rotation Student in Pfenning, Ettensohn, and McManus Labs — **July 2022 - Present**

- Executing projects that use computational approaches to study vocal learning and convergent evolution at a single cell level in order to uncover variants affected in pathways related to speech for experimental validation.
- Evaluated gaps in ongoing research and designed feasible projects to contribute meaningfully to the field.
- Developed an internal pipeline using Bash scripting and public tool integration that determined 3'/5' bias in RNA sequencing was not indicative of mRNA decay.
- Executed experimental analysis on urchin developmental stages and prepared a dozen samples for external sequencing.
- Regularly compiled, organized and presented research updates and findings at departmental and large group conferences.

Furey Lab, UNC Department of Medicine — **Chapel Hill, NC**
Senior Research Intern — **Aug 2019 – Apr 2022**

- Implemented a bioinformatics pipeline using Perl, Bash and Python scripting in a supercomputing environment to identify sites of allelic imbalance in Crohn's disease patients to better understand potential variants to treat using gene therapies.
- Designed, implemented and troubleshot pipeline testing guanine quadruplex formation in stimulated IL 10 KO macrophages.
- Completed and presented major Honors Thesis with results revealing regional correlation to disease-related genes.
- Mentored and managed two undergraduate students through reimplementation of the pipeline for alternative datasets.

Watts Lab at National Institutes of Environmental Health Sciences, National Institutes of Health — **Durham, NC**
Scholars Connect Program Research Fellow — **June 2021 - April 2022**

- Developed computational methods using R, Bash and Python scripting to accurately identify regions forming quadruplexes, and integrated experimental results confirming a correlation between these regions and polymerase pausing/gene expression.
- Delivered communicative research presentations biweekly and quarterly at internal and external meetings.

UNC Division One Baseball — **Chapel Hill, NC**
Data Analyst — **Dec 2019 – Dec 2020**

- Collaborated with 18 analysts to develop game insights using R, assessing likelihoods of certain pitches in various situations.
- Created easy-to-read scouting reports for upcoming opponents by compiling and organizing data for coaches and players.

ADDITIONAL EXPERIENCE

Residential Computing (IT) Consultant | UNC Housing [AUG 2020 - MAY 2021, CHAPEL HILL,NC]
Summer Research Intern | Meyer Lab at Cold Spring Harbor Laboratory [JUNE 2021 - AUG 2021, COLD SPRING, NY]
Summer Research Intern | Colbert Lab at NIAMS, National Institutes of Health [JUNE 2019 - AUG 2019, BETHESDA, MD]
Research Intern | Ley Lab at La Jolla Institute for Allergy and Immunology [JAN 2019 - JUNE 2019, LA JOLLA, CA]
STEM Head Instructor, Administrative Assistant | Zaniac Parkside [JUN 2017 - MAY 2021, CARY, NC]

PUBLICATIONS

- **Rajee Ganesan**, Terrence S. Furey. (2022) Impact of guanine quadruplex formation on transcription and open chromatin regions in stimulated IL 10 KO macrophages. [doi: 10.17615/4vg8-aj33]
- Alex Marki, …, **Rajee Ganesan,** … and Klaus Ley. (2020) Elongated Neutrophil-Derived Structures (ENDS) form from tethers and are highly elevated in sepsis. Journal of Experimental Medicine. [doi: 10.1084/jem.20200551]