

# RUTH RAICHUR

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## EDUCATION

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<b>The University of Texas at Austin, <i>Austin TX</i></b>	2018 - 2022
Bachelor of Science in Biology, Concentration in Genetics and Genomics	GPA: 3.85
Certificate in Applied Statistical Modeling, Minor in Business	
University Honors List (full-time students with a semester GPA of 3.5 or greater)	2018 - 2021

## RESEARCH EXPERIENCE

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**Research Associate I**, Broad Institute of MIT & Harvard, *Cambridge, MA* 2022 - present  
Advisor: Prof. Fei Chen

- Developing tools for spatial immune profiling and targeted, long-read, spatial sequencing to explore the spatial and temporal dynamics of T cell development during thymic involution.
- Optimizing spatial single-cell tool (Slide-tags), improving nuclei capture, and extending the tool to different genomic modalities.
- Creating analysis pipelines in Python and bash for streamlined data processing.

**Undergraduate Researcher**, Department of Molecular Biosciences, UT, *Austin, TX* 2020 - 2022  
Advisor: Prof. Makkuni Jayaram & Prof. Vishy Iyer

- Designed a mini-transposon reporter to identify the chromatin associating sites of selfish DNA element, the 2-micron plasmid.
- Experimented with an MNase based method (similar to ChEC-seq) to accomplish the same goal.

**Undergraduate Researcher**, College of Natural Sciences, UT, *Austin, TX* 2019 - 2020  
Advisor: Prof. Dia Bagchi, through the FRI program

- Constructed three CRISPR/Cas9 plasmids cassettes with human histone variants H2AFB2, H2AZ and H2AFY.
- Created three transgenic yeast strains expressing human histone variants and studied their response to various environmental stressors.

## PUBLICATIONS

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Liu, S.\*<sup>#</sup>, Friedrich, M.\*, **Raichur, R.\***, Gong, D., Kehl, N., Gong, Q., Schmidt, V., Gustafsson, K., Ma, L., Scadden, D., Zhang, F., Chen, F.<sup>#</sup> Spatiotemporal dynamics of the thymus reveal changes underlying immune decline and regeneration. *In Preparation* (2023)

Russell, A.J.C.\*, Weir, J.A.\*, Nadaf, N.M.\*, Shabet, M., Kumar, V., Kambhampati, S., **Raichur, R.**, Marrero, G.J. Liu, S., Balderrama, K.S., Vanderburg, C.R., Shanmugam, V., Tian, L., Wu, C.J., Yoon, C.H., Macosko, E.Z.<sup>#</sup> & Chen, F.<sup>#</sup> & Slide-tags: scalable, single-nucleus barcoding for multi-modal spatial genomics. *Accepted in Nature* (2023)

Sophia Liu, **Raichur, R.\***, Fei Chen. Slide-TCR-Seq v3 (IVT). *protocols.io* (2023)

## CONFERENCES AND SYMPOSIUMS

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**Immunity and Aging, Keystone Symposium**, *Whistler, Canada* Oct 2023  
Poster title: Spatiotemporal dynamics of the thymus reveal cellular changes underlying immune decline from aging.

**Broad Retreat, Broad Institute**, *Cambridge, MA* Dec 2022

Poster title: Spatial and temporal dynamics of T cell development in the thymus from development through involution.

**Undergraduate Research Forum, UT Austin, *Austin, TX*** Apr 2022

Poster title: How a selfish DNA element hitchhikes on chromosomes.

**Capital of Texas Undergraduate Research Conference, UT Austin, *Austin, TX*** Mar 2022

Poster title: How a selfish DNA element hitchhikes on chromosomes.

**Fall Undergraduate Research Symposium, UT Austin, *Austin, TX*** Oct 2021

Presentation title: How a selfish DNA element hitchhikes on chromosomes.

## RESEARCH MENTORSHIP

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**Undergraduate Research**, Broad Institute, *Cambridge, MA* 2023 - present

Larissa Ma MIT undergraduate

Matthew Shum Harvard undergraduate

**Freshman Research Initiative**, UT Austin, *Austin, TX* 2019 - 2022

- Taught 25 freshmen molecular biology wet lab and R computational skills each year.

- Mentored students through their independent research projects in the FRI program lab.

## TEACHING

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**Teaching Assistant**, UT Austin, *Austin, TX* 2020 - 2022

- Assisted in grading and running a course in the College of Natural Sciences: Intro to Research Methods as part of the Texas Institute for Discovery Education in Science.

- Mentored a group of 24 newly admitted students every year, encouraging involvement in undergraduate research and guidance in their social and academic lives at UT.

## AWARDS AND SCHOLARSHIPS

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**Retired Faculty-Staff Association Scholarship**, UT Austin 2019

Awarded to 19 students selected on the basis of academic merit and financial need. \$2500

## WORK EXPERIENCE

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**Content Author**, Macmillan Learning, *Austin, TX* 2019 - present

**Design and Creative Assistant**, Ingenium Global, *Dallas, TX* 2018 - 2019

## INTERESTS AND HOBBIES

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Graphic design, Sci-Comm accessibility, Film photography, Sports: Soccer, Tennis, Basketball.