

RUTH RAICHUR

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EDUCATION

The University of Texas (UT) at Austin; Austin TX

Bachelor of Science in Biology - Expected Spring 2022

Concentration in Genetics and Genomics; GPA: 3.86

Certificate in Applied Statistical Modeling and Minor in Business.

Completed relevant coursework: Genetics, Genetics Lab, Human Genetics, Biochemistry, Organic Chemistry, Biostatistics, Fundamentals of Data Science.

Relevant coursework planned/in-progress: Molecular Biology, Computational Biology, Developmental/Stem Cell/Regenerative Biology, Developmental Biology Lab

University Honors

Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021

RESEARCH EXPERIENCE

Department of Molecular Biosciences, UT; Austin TX November 2020 - Present

Undergraduate Research Volunteer

PIs: Dr. Makkuni Jayaram, Dr. Vishy Iyer

- Independent research in understanding the hitchhiking mechanisms of eukaryotic extra-chromosomal selfish DNA elements. Mapping plasmid tethering sites on yeast chromosomes using a high-throughput genome-wide strategy.
- Employing a mini-transposon reporter containing *STB* flanked by the inverted repeats (IRs) of the Tn5 transposon to identify the chromosome locales containing transposon insertions by deep sequencing.

Freshman Research Initiative (FRI), UT; Austin TX January 2019 - Present

PI: Dr. Vishy Iyer

Research Educator: Dr. Dia Bagchi

Stream: Functional Genomics

Undergraduate Researcher

- Used next-generation sequencing technologies and the CRISPR/Cas9 to replace yeast histones with their human ortholog to study histone transcription regulation in human H2A histone variants.
- Used computational methods to obtain a mechanistic understanding of transcriptional regulation and evolutionary underpinnings of molecular behavior.

Peer Mentor

- Working with new FRI students in mastering essential bioscience lab skills and adjusting to the intellectual demands of research.
- Assisting 25 students in their independent research projects.
- Presenting research at poster sessions, representing the stream.

Department of Molecular Biology, IISC; Bangalore, India July 2017

Research Intern

- Learned about the genetic techniques employed to decipher the genomic background of neglected diseases
- Understood the workings of PCR and mass spectroscopy, and DNA extraction techniques.

CONFERENCE AND SYMPOSIUM ATTENDANCE

Fall Undergraduate Research Symposium (FURS), UT; Austin TX October 2021

Oral Presentation

- Presentation title: Understanding how a selfish DNA element hitchhikes on chromosomes.

Freshman Research Initiative Meet and Greet, UT; Austin TX September 2021

Oral Presentation

- Presentation of FRI's Functional Genomics Stream research projects to incoming FRI students at Meet and Greet poster sessions.

Capital of Texas Undergraduate Research Conference (CTRUC), Austin TX March 2021

Volunteer

LABORATORY SKILLS

- Molecular Biology Techniques:
 - Genetics: PCR (primer design, mutagenesis, cloning), gene cloning (plasmid digestion and ligation), agarose gel electrophoresis (and extraction), DNA extraction (plasmid, genomic, NanoDrop, and spectrophotometer analysis), transformation (yeast, bacteria)
 - Proteins: Extraction, SDS PAGE, western blotting
 - Lab preparations: Chemically competent cells (yeast, bacteria), agar plate preparations (LB, YPD, drop-out), SDS page gels, reagents for aforementioned techniques.
- Computational Skills: Proficiency in R and Python programming languages with a focus on computational biology analytics.
 - Portfolio: ruthraichur.github.io/projects

WORK EXPERIENCE

Texas Institute for Discovery Education in Science, UT; Austin, TX August 2020 - Present

Teaching Assistant and Peer Mentor for a course in Natural Sciences: Intro to Research Methods

- Provides assistance in grading and running the course.
- Mentors a group of 24 newly admitted students, helping them adjust to their life at UT in both the social and academic aspects.
- Encourages involvement in undergraduate research by providing guidance through the FRI program.

Macmillan Learning; Austin, TX May 2019 - Present

Content Author

- Assisting the Life and Earth Sciences media content team with the authoring and management of online learning systems.

Ingenium Global; Dallas, TX September 2018 - May 2019

Graphic Design and Creative Assistant

- Designed participant guides, slide decks, and other forms of visual media for upper-level management training workshops.

ACTIVITIES & LEADERSHIP

Research Student Advisory Council (RSAC), UT; Austin TX August 2020 - Present

Member

- RSAC advises the Office of Undergraduate Research, communicating the needs of UT's student researchers.
- Involved in organizing the student-run Capital of Texas Undergraduate Research Conference (CTURC) in collaboration with the University Research Journal (URJ) and Natural Sciences Council (NSC)