Shreyan Gupta

College Station, TX • +1 979.326.2886 • shreyang@tamu.edu • www.linkedin.com/in/guptashreyan

SUMMARY

A PhD Student in Mammalian Genomics and Bioinformatics with hands-on experience in analyzing large-scale biological datasets and developing computational models to investigate scientific questions. Skilled in bioinformatics, genomics, and ML, with a passion for interdisciplinary research and advancing healthcare innovation.

EDUCATION

Doctor of Philosophy in Biomedical Sciences GPA - 4.00/4 Expected
Texas A&M University, College Station, USA Fall 2026
Advisor - Dr James J. Cai

Bachelor of Technology in Biotechnology GPA - 9.07/10 July 2022
Vellore Institute of Technology, Vellore, India

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant *College Station, TX*
Veterinary Integrative Biosciences, Texas A&M University *Jan 2025 - Present*

- Assisted in managing online course materials for three undergraduate courses, ensuring seamless content organization and accessibility.
- Taught graduate-level coursework on machine learning, emphasizing its applications in transcriptomics data analysis, and guided students through practical implementations.

Graduate Research Assistant *College Station, TX*
Veterinary Integrative Biosciences, Texas A&M University *Jan 2023 - Jan 2025*

- Developed network theory and ML-based algorithms using Python and R to gene functional inference and gene-gene relationships using single-cell multi-omics data.
- Optimized Python and R pipelines for pathway analysis, functional genomics, and large-scale analysis of single-cell/bulk RNA-seq, CITE-seq, ATAC-seq, and spatial transcriptomics data.
- Led transcriptomic analyses with six interdisciplinary research groups (immunology, nutrition, endocrinology, neuroscience), driving data-driven discoveries.

Student Research Assistant *College Station, TX*
Veterinary Integrative Biosciences, Texas A&M University *Oct 2022 - Dec 2022*

- Conducted sequence alignment for bulk and single-cell RNA-seq raw data using STAR and CellRanger.

- ➢ Implemented R and MATLAB pipelines for RNA-seq downstream analysis and visualization.
- ➢ Analyzed cis-regulatory regions and their functional predictions using ChIP-seq data.

Research Intern *Kanpur, India*

Indian Institute of Technology - Kanpur *Dec 2021 - Jun 2022*

- ➢ Benchmarked ten distance metrics to evaluate clustering accuracy in high-dimensional single-cell RNA-seq data.
- ➢ Presented and defended Capstone thesis, earning the highest grade.
- ➢ Collaborated within a multidisciplinary research group combining computational biology, genomics, and data science expertise.

Marketing Intern *Bengaluru, India*

Hirect *Mar 2021 - Apr 2022*

- ➢ Devised campaigns to increase the organization's media reach on Instagram and LinkedIn.
- ➢ Executed over a hundred social media, email, digital, business white papers, and offline advertisement campaigns and designed 1000+ digital content.

Summer Research Intern *Pune, India*

Lupin Ltd. *Jul 2020 - Sep 2020*

- ➢ Analyzed the upstream manufacturing process of monoclonal antibodies and fusion proteins, focusing on factors contributing to immunogenicity.
- ➢ Developed research skills, gained insights into the biotechnology industry, and drafted a review article summarising my experience.

PUBLICATIONS

Gene Function Revealed at the Moment of Stochastic Gene Silencing

Communications Biology

Gupta, S., Cai, J.J., (2025). doi: https://doi.org/10.1038/s42003-025-07530-0

Aerobic exercise decreases the number and transcript expression of inflammatory M1 macrophages and CD8+ T cells in the epicardial adipose tissue of female pigs

bioRxiv [Preprint]

Gupta, S., other authors. (2024). doi: https://doi.org/10.1101/2025.02.02.635562

Extracellular vesicles from human-induced pluripotent stem cell-derived neural stem cells alleviate proinflammatory cascades within disease-associated microglia in Alzheimer's disease

Journal of Extracellular Vesicles

Madhu, L.N., Gupta, S., other authors. (2024). doi: https://doi.org/10.1002/jev2.12519

Single-nucleus transcriptomics of epicardial adipose tissue from females reveals exercise control of innate and adaptive immune cells
Cell Communication and Signaling
Gupta, S., other authors. (2024). doi: https://doi.org/10.1186/s12964-024-01587-w

Quantum Annealing for Enhanced Feature Selection in Single-Cell RNA Sequencing Data Analysis
arXiv [Preprint]
Romero, S., Gupta, S., other authors. (2024). doi: https://doi.org/10.48550/arXiv.2408.08867

Beyond Differential Expression: Embracing Cell-to-Cell Variability in Single-Cell Gene Expression Data Analysis
biorXiv [Preprint]
Gatlin, V., Gupta, S., other authors. (2024). doi: https://doi.org/10.1101/2024.08.08.607086

Role of RSPO3 in Estrogen-mediated Sex Differences in Body Fat Distribution: A Single-cell Data-driven Study
biorXiv [Preprint]
Xu. Q., Gupta, S., other authors. (2024). doi: https://doi.org/10.1101/2025.01.03.631121

CONFERENCE PRESENTATIONS

Mapping Gene Influence by Single-Cell Perturbation Response Scanning *Nov 2024*
Texas A&M Genome Editing Symposium, College Station, USA
3rd Place, Lightning Talk

Mapping Gene Influence by Single-Cell Perturbation Response Scanning *Oct 2024*
GCC Single Cell Omics Symposium 2024, Houston, USA

scPRS: A Single-Cell Tool for Perturbation Response Scanning *Oct 2024*
International Conference on Intelligent Biology and Medicine 2024, Houston, USA

Uncovering Cell-State Specific Gene Function through Single-Cell Stochastic Gene Silencing Phenomenon *May 2024*
TREC 2nd Annual Cancer Research Symposium, College Station, USA

Stochastic Transient Gene Silencing Reveals Key Insights on Cell-State Specific Gene Function *Oct 2023*
GCC Single Cell Omics Symposium 2023, Houston, USA

INVITED TALKS

Beyond Averages: Exploring the Individuality and Meaningful Chaos of Single-Cell Gene Expression *Mar 2024*
Texas Single Cell Seminar, MD Anderson Cancer Center, USA

An Overview of Single-cell RNA Sequencing and its Recent Advances *Jul 2023*

SURGe Session: Bioinformatics in Genetics Research, Texas A&M University, USA

UNIVERSITY SERVICE AND LEADERSHIP

Treasurer *College Station, USA*
Graduate Student Association, CVMBS, Texas A&M University *Aug 2024 - Present*

- ➢ Managed and oversaw the association's finances, including budgeting, reporting, and compliance.

Creative Chair *Vellore, India*
Alpha Bio Cell, Vellore Institute of Technology *Aug 2019 - Jan 2021*

- ➢ Led the design team and created over 100 bio-entrepreneurship-based design and marketing campaigns.
- ➢ Worked on bio-based technical projects and led the project Moksh which was selected for a national-level Hack-a-thon.

Program Representative *Vellore, India*
School of Biosciences and Technology, Vellore Institute of Technology *Aug 2019 - Aug 2020*

- ➢ Selected based on academic merit as the liaison between the students and faculty at the School of Biosciences and Technology
- ➢ Organized and led monthly meetings with the Head of the Department and the students to address academic as well as non-academic student issues

HONORS AND AWARDS

Walter W. Lechner Estate Scholarship, *Texas A&M University* *2023*
Merit-based Scholarship for educational and travel expenses related to research or academic activities.

Biotechnology Fellowship, *Texas A&M University* *2022*
Academic Scholarship based on merit for Master of Biotechnology Program.

Rajya Puraskar, *Bharat Scouts and Guides, India* *2016*
Awarded the highest state-level Scouting honor by the state governor.

EXTRA-CURRICULAR ACTIVITIES & VOLUNTEERING

Participant, Three Minute Thesis Competition, Texas A&M University *2024*

Participant, VMBS Trainee 3 Minute Thesis Competition, Texas A&M University *2024*

Winner, *Internal Hack, Smart India Hack-a-thon, VIT Vellore* *2020*

Coordinator, *IEEE EMBS International Student Conference, VIT Vellore* *2021*

Core Committee Member, *Helphen, VIT Vellore* *2019-2020*

Core Committee Member, *VIT Trekking Club, VIT Vellore* *2019-2020*

Organizer, *Swadheyan 2020, Alpha Bio Cell, VIT Vellore* *2020*

Organizer, *Radiate, Alpha Bio Cell, VIT Vellore* *2020*

Participant, *Parallax (Hack-a-thon), The Electronics Club, VIT Vellore* *2020*

Organizer, *VIT Marathon, Helphen, VIT Vellore* *2020*
Volunteer, *Project Kinder, Helphen, VIT Vellore* *2019*
Organizer, *Essence, Alpha Bio Cell, VIT Vellore* *2019*
Organizer, *Swadheyan 2019, Alpha Bio Cell, VIT Vellore* *2019*
Organizer, *Navigation Bootcamp, VIT Trekking Club, VIT Vellore* *2019*
Coordinator, *VIT Cyclothon, Helphen, VIT Vellore* *2019*
Delegate, *VIT Model United Nations, VIT Vellore* *2019*
Participant, *VIT Marathon 2019, VIT Vellore* *2019*

TECHNICAL SKILLS

Programming languages: Python, R, MATLAB.
Bioinformatics and ML Frameworks: Bioconductor, Seurat, ggplot2, Scanpy, PyTorch, Networkx, SciPy, sci-kit learn, GraphPad Prism, Matplotlib, Seaborn
Graphic design: Adobe Photoshop, Adobe Illustrator, Figma.
Other: MS Office, Command line (Linux, Mac OS, Windows OS).

LANGUAGES

English: Proficient
Hindi: Fluent
Bengali: Fluent

REFERENCES

James J Cai, Director, and Professor,
Data Science Core, CPRIT Regional Center of Excellence in Cancer Research,
Department of Veterinary Integrative Biosciences,
Texas A&M University
Email ID: jcai@tamu.edu