

Sarthak Satpathy

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ACADEMIC DETAILS

- **Ph.D Computer Science and Informatics**

GPA: 3.97/4;

- **M.Sc. (5-YR Integrated) Systems Biology**

GPA: 9.51/10

This course is equivalent to a combined Bachelor and Master of Science degree.

Emory University, GA, USA

August 2021- Present

University of Hyderabad, India

July 2016 - July 2021

RESEARCH EXPERIENCE

- **AI-Driven Discovery of Theranostic Cancer Biomarkers using Single-Cell and Spatial Omics Data.**

Supervisor: Dr. Manoj Bhasin, Emory University

August 2021 - Present

- **Effect of Neoantigens properties on Immune landscape in Multiple Myeloma.**

Developing an end-to-end pipeline for identifying optimal neoantigens and understand their effect on immune landscape in MM.

- **Deep learning-based classifier for malignant plasma cell identification in Myeloma.**

Developing an auto-encoder based deep learning model to identify malignant plasma cells from normal ones in Myeloma.

- **Comparative single-cell RNA-seq analysis for samples prepared by cellSimple prEservation of Single cElls (SENSE) and traditional ficoll paque PBMC method.**

- **Comparative scRNA-seq and TCR-seq analysis for Indoximod-based chemo-immunotherapy for pediatric brain tumors: a first-in-children phase 1 trial.**

Implementing a TCR expansion index followed by trajectory, velocity, differential expression and survival analysis to understand the effect of immunotherapy drug on the patient immune system.

- **Comparative single-cell RNA-seq analysis for samples prepared by cellSimple prEservation of Single cElls (SENSE) and traditional ficoll paque PBMC method.**

- **Studying circular RNA using single cell sequencing data**

Supervisor: Dr. Julia Salzman, Stanford University

April 2020 - January 2021

Khorana Program for Scholars 2020 (Remote)

- Using data from circular detection algorithms on single-cell RNA-seq data to understand circular backsplicing mechanisms. Processing alignment files for usage in ReadZS, an alternate statistical approach for adenylation and splicing detections.

- **Identification of gender-specific prognostic genes in cancers using Cox-regression and Survival Analysis**

Supervisor: Dr. Manjari Kiran, DoSCB, University of Hyderabad, India

August 2019 - July 2021

- **Master's thesis:** Identification of sex-specific prognostic genes in 11 cancer type, based on gene expression and clinical data from TCGA using survival analysis.

- Other collaborative projects included differential gene expression analysis and gene set enrichment analysis on micro-array data to understand HPIP inhibition and its association to preeclampsia; and comparison RNA types in liver transplant patients' RNA abundance data

- **Iron Status during Pregnancy and Post Partum.**

Supervisor: Dr. Yan Yuan, Associate Professor(Biostatistics), School of Public Health, U of A
Alberta Research Experience(UARE) Program, Edmonton, Alberta, Canada

May to July 2019 University of

- **Understanding a system-level framework of the human metabolic interaction network of the human gut microbiota and its role in health and disease.**

Supervisor: Dr. Pranay Goel, Associate Professor, IISER-Pune

May to June 2018

IISER-Pune Summer Student Programme 2018, India

SCHOLARLY WORKS

- **Satpathy S., Thomas B.E., Pilcher W.J., Bakhtiari M., Ponder L.A., Pacholczyk R., Prahalad S., Bhasin S.S., Munn D., Bhasin M** The Simple prEservation of Single cElls method for cryopreservation enables the generation of single-cell immune profiles from whole blood. *Frontiers in immunology*. 28 Nov. 2023
- **Pilcher WC, Yao L, Gonzalez-Kozlova E, Pita-Juarez Y, Karagkouni D, Acharya CR, Michaud ME, Hamilton M, Nanda S, Song Y, Sato K, Wang JT, Satpathy S, ... , Mulligan G, Ding L, Gnjjatic S, Vlachos IS, Bhasin M.** A single-cell atlas characterizes

- dysregulation of the bone marrow immune microenvironment associated with outcomes in multiple myeloma. *Nat Cancer*. 2026 Jan;7(1):224-246. doi: 10.1038/s43018-025-01072-4.
- Ohlstrom DJ, Michaud ME, Bakhtiari M, Vieira Dos Santos J, Pilcher WC Jr, Staub A, **Satpathy S**, Ferguson K, Mantrala S, Kim-Schulze S, Chen Z, Lonial S, Kemp ML, Sherbenou D, Lagana A, Jaye DL, Nooka AK, Parekh S, Bhasin MK. bioRxiv 2026.03.23.713195; doi: <https://doi.org/10.64898/2026.03.23.713195>
 - Ohlstrom DJ, Pilcher WC Jr, Michaud ME, Acharya C, **Satpathy S**, Gonzalez-Kozlova E, Jayasinghe RG, Ferguson K, Mumme HL, Nanda S, Song Y, Mantrala S, Karagkouni D, Schulman J, Pabustan N, Vieira Dos Santos J, Sherbenou DW, Keats JJ, Gout AM, Foltz S, Lagana A, Kourelis T, Vij R, Dhodapkar MV, Avigan D, Cho HJ, Baughn LB, Nooka AK, Lonial S, Kumar S, Samur MK, Vlachos IS, Ding L, Gnjjatic S, Mulligan G, Bhasin MK. Longitudinal Profiling of Tumor and Immune Compartments Uncovers Patterns of Dysregulation and Associations with Response in Multiple Myeloma. *Blood Cancer Discov*. 2026 Mar 4;7(2):266-286. doi: 10.1158/2643-3230.BCD-25-0205.
 - Ohlstrom D, Bakhtiari M, Mumme H, Michaud M, De Janon Gutierrez A, DeRyckere D, Ferguson KE, Chien F, Pilcher W, **Satpathy S**, Jordan S, Graham D, Bhasin S, Bhasin M. Correction: Longitudinal single-cell analysis reveals treatment-resistant stem and mast cells with potential treatments for pediatric AML. *Leukemia*. 2025 Nov;39(11):2832. doi: 10.1038/s41375-025-02773-6. Erratum for: *Leukemia*. 2025 Nov;39(11):2721-2734.
 - Penugurti V, Dey O, Kalali S, Kashyap DK, Khumukcham SS, Kizhuvethath A, **Satpathy S**, Kiran M, Row AT, Surapaneni T, Manavathi B. Potential role of Hematopoietic PBX-Interacting Protein (HPIP) in trophoblast fusion and invasion: Implications in pre-eclampsia pathogenesis. *Cell Signal*. 2025 Apr;128:111633. doi: 10.1016/j.cellsig.2025.111633.
 - Johnson TS, MacDonald TJ, Pacholczyk R, ..., **Satpathy S**, ..., Bhasin MK, Munn DH. Indoximod-based chemo-immunotherapy for pediatric brain tumors: a first-in-children phase 1 trial. *Neuro Oncol*. 2023 Sep 16:
 - Das S, Singh S, **Satpathy S**, Bhasin M, Kumar A. Transcriptomics and systems biology identify non-antibiotic drugs for the treatment of ocular bacterial infection. *iScience*. 2022 Aug 2;25(9):104862.
 - Dwivedi B, Mumme H, **Satpathy S**, Bhasin SS, Bhasin M. Survival Genie, a web platform for survival analysis across pediatric and adult cancers. *Sci Rep*. 2022 Feb 23;12(1):3069.
 - Kuscu C, Kiran M, Mohammed A, Kuscu C, **Satpathy S**, Wolen A, Bardhi E, Bajwa A, Eason JD, Maluf D, Mas V, Akalin E. Integrative Analyses of Circulating Small RNAs and Kidney Graft Transcriptome in Transplant Glomerulopathy. *International Journal of Molecular Sciences*. 2021; 22(12):6218.

TECHNICAL SKILLS

- **Computational: Languages** (C), **Script** (R, Python), **MATLAB Tools** (LaTeX, Origin, Cytoscape, Snakemake workflow manager, Tensorflow, NumPy, Keras, PyTorch).
- **Relevant graduate courses:** Introduction to Deep Learning, Machine Learning, Data Mining, Biomedical Informatics, Biostatistics for ML, High Throughput Data Analysis R and Bioconductor.
- **Bioinformatics:** Single-cell RNA-seq, TCR-seq, Genomic tools/pipelines used in Next Generation Sequencing Analysis. Sequence Alignment, Protein modeling, Docking.

TEACHING ASSISTANTSHIPS

CS 170 Introduction To Computer Science I - Summer 2023; BMI 510 Biostatistics for Machine Learning - Spring 2023; CS170 Introduction To Computer Science I - Fall 2022; BMI 585R Cancer Single Cell Analytics - Spring 2022

RESEARCH PRESENTATIONS

- **Poster presentation at ASH, Dec 9-12 2023** Abstract submitted for "The SENSE (Simple prEservationN of Single cElls) method for cryopreservation enables the generation of single-cell immune profiles from whole blood."
- **Poster presenter at IMS meeting, Sept 27-30 2023** Presented my work- "Deep learning-based classifier for malignant plasma cell identification from single-cell RNA-seq data." at 20th International Myeloma Society Annual Meeting in Athens, Greece
- **Speaker at AWSOM Workshop, April 14-15 2022** Presented my work- "TCRQuant: Tool for T cell receptor analysis" at Atlanta Workshop on Single-cell Omics, Georgia Institute of Technology
- **Poster presenter at Virtual Biological Data Science Meeting, Nov 4-6, 2020** Presented my work "Pan-cancer identification of sex-biased prognostic genes" at Cold Spring Harbor Laboratory Conference.

HONORS & AWARDS

- **University Medal - University of Hyderabad** Top score in the Systems Biology program.
- **Khorana Program for scholars** (2020) is a competitive internship program funded by Govt. of India for Indian students to carry out research in US universities
- **University of Alberta Research Experience** (2019) is a [summer internship program](#) to carry out research under the supervision of a University of Alberta faculty with an award of \$6,000 CAD.

CO-CURRICULAR

- *Planning Committee*, Atlanta Workshop for Single-cell Omics (AWSOM) 2023
- *Coordinator*, Junior Science Club (JSC) , University of Hyderabad, Hyderabad.

REFERENCES

- **Dr. Manoj Bhasin**

Associate Professor, Emory University, USA.

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