

## EDUCATION

**MS Biomedical Informatics** GPA - 4.0 *New York University* - August 2025

**Courses:** Machine Learning; Quantitative Biology; Single cell omics; Healthcare Data Management;

*Recipient of scholarship*

M.Sc. Clinical Embryology GPA- 3.78 JSS Medical College - 2021

*Postgraduate Valedictorian*

B.Sc. Zoology and Biotechnology GPA- 3.67 Stella Maris College - 2018

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## PROFESSIONAL EXPERIENCE

### New York University | Graduate Researcher

1. *Fenyo Lab* | June 2024 - Present

- I am investigating the connection between endometriosis and recurrent implantation failure using single-cell RNA sequencing (scRNA-seq) to uncover immunological molecular mechanisms that contribute to infertility.

2. *Lionnet lab* | January 2025 - Present

- I am studying histone locus body transcription where my role involves building reporter constructs, DNA/RNA isolation, cloning and gene edits using shRNA and CRISPR.
- In addition, I am building a deep learning framework to segment cytoplasm from bright field images with tags for each cell which can facilitate cell tracking and also reducing a channel for staining which will be used to visualize protein expression.

**Spovum Technologies | Cluster Head - Embryologist** | July 2023 - June 2024

- I developed ART-GPT, an LLM utilizing RAG (Retrieval-Augmented Generation) with OpenAI GPT-4.0 API, enhancing ART knowledge retrieval through automated data scraping, embedding, and indexing via AnythingLLM. Additionally, I served as the subject matter expert for an AI embryo monitoring system and IoT smart IVF device, developing a temperature prediction ML model for IVF labs.
- I managed clinical operations at 16 IVF labs across India, including the clinical management of 5 IVF hospitals in Chennai, leading a team of 13 embryologists.

**Manipal Hospitals | Clinical Embryologist** | December 2021 - July 2023

*Awards: Best Research in Embryology at the ISAR conference- August 2022*

- Built an ML model to calculate the DNA Fragmentation Index (DFI) of sperm - designed an image-processing pipeline to process stained sperm cells and a deep learning framework that leveraged unstructured data in a Hierarchical Fully Convolutional Network (H-FCN).
- Responsible for all clinical procedures like, gamete micromanipulation and microinjection, embryo culture, ovarian tissue/oocyte/embryo/blastocyst freezing, embryo transfer, and embryo biopsy.
- I Performed over 500 Microinjections. Showing fertilization rates of 92%. I Performed over 300 embryo cryopreservation showing a survival rate close to 100%.

## SKILLS

**Molecular techniques-** PCR, DNA/RNA extraction, Cloning, cell culture, gene editing - shRNA, CRISPR, Gamete microinjection, IVM/ICSI/IVF/SCNT, embryo cryopreservation.

**Single cell/bulk RNA sequencing; Image analysis** - Fiji, ImageJ, Microscopy; **Languages:** Python-Pytorch, Tensorflow R, SQL; **ML model architectures:** CNN, R-CNN, RNN, LSTM;

## PUBLICATIONS AND CONFERENCES

1. **Deep learning-based automated robust system for predicting human sperm DNA** fragmentation index March 2023
2. **Chapter co-author:** Sperm Function Tests, Textbook: Principles and Practice of Assisted Reproductive Technology, Dr. Kamini A Rao July 2023
3. **Chapter co-author:** Assessment of Fertilization, Textbook: Infertility Manual 5th Ed, Dr. Kamini A Rao, February 2024
4. **Keystone Symposia Conference:** Regenerative Biology of the Female Reproductive System, April 2025: Presented my work on Immune modulation in endometriosis and its impact on embryo implantation