

# Souvadra Hati

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## EDUCATION

### Georgia Institute of Technology

Aug. 2022 – Present

PhD in Computer Science • GPA: 4.0/4.0

Atlanta, GA

- **Coursework:** HPC Algorithms, HPC Architecture, Grad Algorithms, Grad Machine Learning
- **Research Interests:** Co-Design of Genomics and Graph Workloads, Asynchronous Parallel Algorithms

### Indian Institute of Science

Aug. 2018 – Jul 2022

Bachelor of Science (Research) in Biology and Computing

Bangalore, India

- **Coursework:** Machine Learning, Data Science, Game Theory, Neural Signal Processing, Systems Biology
- **Scholarship:** Cargill Global Scholars fellow, KVPY scholar (All India Rank: 242)

## EXPERIENCE

### HPC Garage | School of CSE, Georgia Institute of Technology

Sept. 2022 – Present

Graduate Research Assistant; Advisor: Richard Vuduc

Atlanta, GA

- Developed parallel de-Bruijn graph construction algorithm; **2-3x** speedup over PakMan.
- Designed parallel algorithms for influence maximization on large social networks; **5-30x** speedup over Ripples

### ATCG Lab | Computational Genomics, Indian Institute of Science

Jan. 2022 – Apr. 2022

Undergraduate Researcher; Advisor: Chirag Jain

Bangalore, India

- Developed *MMC* toolkit, a fast and multithreaded minimizer counter, using C++ [\[Link\]](#)
- Designed a parallel algorithm to sparsely sample DNA *k*-mers while covering all the nucleotides in the genome
- Developed mathematical framework *minimizer*-space genome size estimation; fastest multithreaded pipeline

### Cancer Systems Biology Lab, Indian Institute of Science

Dec. 2019 – Sep. 2020

Research Intern; Advisor: Mohit Kumar Jolly

Bangalore, India

- **Co-authored** two peer-reviewed articles in reputed journals: **Physical Biology** [\[Link\]](#), **Interface** [\[Link\]](#)
- **Best Poster** at *SMB 2021* conference for deciphering the operating principles of *circular toggle polygon* networks
- Developed MATLAB scripts to visualize the dynamics of complex biological networks [\[Link\]](#)
- Mathematical modeling of CD4<sup>+</sup> T-cell differentiation; predictions experimentally verified by an independent lab

### International Genetically Engineered Machine (iGEM)

Mar. 2019 – Nov. 2019

Hardware and Modeling team, iGEM IISc

Cambridge, MA

- Awarded **gold medal** at iGEM Giant Jamboree; received iBEC grant worth **USD 13,500** by Govt. of India
- Led a team of seven students; built OptoMatic: automated hardware for creating bacterial co-culture [\[Link\]](#)
- Organized interactive seminars on genetic engineering for K-12 students in Bangalore and Kolkata

## SKILLS

**Languages :** Python, C/C++, MATLAB, R, Java, SQL, Julia

**Libraries** MPI, OpenMP, OpenSHMEM, UPC

**Tools :** Git, LaTeX