

# Ruhila S.

Hostel 7  
IISER Mohali, 140306,  
✉ [ms20110@iisermohali.ac.in](mailto:ms20110@iisermohali.ac.in)  
🌐 <https://github.com/RuhilaS/>



*“Nothing exists for itself alone, but only in relation to other forms of life.”  
– Charles Darwin*

## Personal Data

Name Ruhila S.  
Date Of Birth 20.09.2001  
Birthplace Virudhunagar, Tamil Nadu, India

## Education

2021–PRESENT **B.S-M.S. Biology (Major) Data Science (Minor)**, *Indian Institute of Science Education and Research (IISER), Mohali, India*  
8.3 CGPA  
2020 **Intermediate (AISSCE)**, *Velammal Vidyalaya, Ayanabakkam, Chennai, India*  
83.8% Central Board of Secondary Education (CBSE)  
2017 **High School (AISSE)**, *Velammal Vidyalaya, Ayanabakkam, Chennai, India*  
10.0 Cumulative Grade Point Average (CGPA) in Central Board of Secondary Education (CBSE)

## Experience

### Internships

WINTER 2022 **Dr. Nagma Parveen, IIT Kanpur**, Research Intern  
I shall be working on wet-lab methods for studying the mechanisms of viral action under varying external stimuli.

- SUMMER **Prof. Arnar Pálsson**, *University of Iceland*, Research Staff
- 2022–PRESENT Detailed analysis in a literate and reproducible manner for simulating a series of possible molecular evolutionary pathways for the *Salmolid* using phylogenetic trees. This involved the five steps on an HPC (High Performance Computer) with literate programming visualization in R:
- Data curation with NCBI databases
  - Homology inference using similarity measures (BLAST)
  - Multiple sequence alignment (MUSCLE5)
  - Alignment trimming (G-BLOCK)
  - Tree simulation with distance measures (BIONJ) and maximum likelihood approaches (RAXML-NG)
- PROJECT REPORT: Computational Primitives for Evolutionary Paths ( $\approx$  147 pages)
- SUMMER 2021 **Dr. Lolitika Mandal**, *IISER Mohali*, Research Intern
- Exploring Genetic Tools for working with *Drosophila* from a wet-lab perspective of data collection and analysis.
- Volunteer Work**
- 2022–PRESENT **IEEE P3173**, *IEEE Standards Committee*, Secretary
- Am supporting the drafting the IEEE Standard for Endocrine Disrupting Chemical Hazard Labeling
- 2021–PRESENT **Biological Society**, *IISER Mohali*, Member
- Enthusiastic participant and also am responsible for arranging independent peer-reviewed article readings.
- 2021–PRESENT **Dance Society**, *IISER Mohali*, Member
- Active participant for choreography and performances.

## Certifications

### NPTEL Courses

- SEP 2022 **Applications of machine learning techniques in biology using WEKA**, *IIT Madras*, Distinction, 93%

### Other Courses

- NOV 2022 **Practical Python for beginners: a biochemist's guide**, *Biochemical Society, U.K.*
- NOV 2022 **The future of HPC programming - a Modern Fortran workshop**, *Swedish National Infrastructure for Computing, Online*

## Technical Skills

### Programming Languages

- |             |                                   |          |         |
|-------------|-----------------------------------|----------|---------|
| EXPERIENCED | R, Python (3.x), Shell (zsh,bash) | FAMILIAR | C, Java |
|-------------|-----------------------------------|----------|---------|

## Bioinformatics Packages

EXPERIENCED	Randomized Axelerated Maximum Likelihood new generation (RAXML-NG), MUSCLE5 (multiple sequence alignment)	FAMILIAR	WEKA, BEAST2 (Bayesian Evolutionary Analysis Sampling Trees) via babbette, Snakemake
-------------	---	----------	--

## Tools

EXPERIENCED	Git (version control), ssh, Vim, Markdown	FAMILIAR	Office-Suites (MS, OpenOffice, LibreOffice)
-------------	---	----------	---

## Experimental

BIOLOGICAL	Handling flies (wild-type, w <sup>1118</sup> , tubby), Drosophila larva dissection (brain, salivary gland, proventriculus, imaginal discs, gastric caeca), Fixing, staining, mounting viewing tissues with Fluorescent microscopes, Making PBS, PFA	PROFESSIONAL	Time management, critical thinking, problem solving, communication
------------	---	--------------	--

## Research Topics

EXPERIENCED	Phylogenetic Tree Construction (Distance, Maximum Likelihood, Bayesian), Evolutionary Biology, Population genetics, R reproducible literate programming, High performance open source software, Scientific Software Development for High Throughput calculations	INTERESTED	Biomolecular simulations, Genomics, Modeling genetic markers for disease, Oncology and stem cells, Human genetics
-------------	--	------------	---

## Affiliations

### Memberships

2022–PRESENT	<b>RSC (Royal Society of Chemistry)</b> , Student Member
2022–PRESENT	<b>RSB (Royal Society of Biology)</b> , Student Member
2022–PRESENT	<b>British Ecological Society</b> , Student Member
2022–PRESENT	<b>Biochemical Society, UK</b> , Undergraduate Member

2022–PRESENT **Genetics Society, UK**, Undergraduate Member  
2022–PRESENT **Genetics Society of America**, Undergraduate Member  
2022–PRESENT **Royal Microscopical Society, UK**, Undergraduate Member  
2022–PRESENT **IEEE EMBS (Engineering in Medicine and Biology Society)**, Student Member  
2022–PRESENT **Federation of European Biochemical Societies (FEBS)**, Member  
2022–PRESENT **European Microscopy Society**, Member  
2022–PRESENT **ACM (Association for Computing Machinery)**, Student Member

## Publications

### CONFERENCE PROCEEDINGS

Rohit Goswami, Ruhila S, Amrita Goswami, Sonaly Goswami, and Debabrata Goswami. “Reproducible High Performance Computing Without Redundancy with Nix (accepted).” In: *2022 Seventh International Conference on Parallel, Distributed and Grid Computing (PDGC)*. 2023.

Rohit Goswami and Ruhila S. “High Throughput Reproducible Literate Phylogenetic Analysis (accepted).” In: *2022 Seventh International Conference on Parallel, Distributed and Grid Computing (PDGC)*. 2023.

## Conference Records

### Posters

NOVEMBER 2022 **Tracing Lineages of *Salmo Salar* through Histone sequence data**, *BES Annual Meeting 2022*, Ruhila S., Accepted

### Oral Presentations

NOVEMBER 2022 **High Throughput Reproducible Literate Phylogenetic Analysis**, *IEEE PDGC-2022*, R. Goswami, Ruhila S., Accepted

NOVEMBER 2022 **Reproducible High Performance Computing Without Redundancy with Nix**, *IEEE PDGC-2022*, R. Goswami, Ruhila S., A. Goswami, S. Goswami and D. Goswami, Accepted

NOVEMBER 2022 **Reproducible Literate Programming Workflows for Censored Data**, *IOP Machine Learning for Healthcare*, R. Goswami, R. S.