

Ruhila S.

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🌐 <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 familiarized myself with wet-lab methods for studying the mechanisms of viral action under varying external stimuli. I also began work on a protocol for the generation of pseudoviruses for SARS-CoV-2 based on an HIV-1 lentiviral packaging system with a luciferase reporter.
- SUMMER 2022–PRESENT **Prof. Arnar Pálsson, University of Iceland**, Research Staff
Detailed analysis in a literate and reproducible manner for simulating a series of possible molecular evolutionary pathways for the *Salmonella* 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 babette, Snakemake

Tools

EXPERIENCED Git (version control), ssh, Vim, Markdown

FAMILIAR Office-Suites (MS, OpenOffice, LibreOffice)

Experimental

BIOLOGICAL Handling flies (wild-type, w¹¹⁸, 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 RSC (Royal Society of Chemistry), Student Member

2022–PRESENT **RSB (Royal Society of Biology)**, Student Member

2022–PRESENT **British Ecological Society**, Student Member

2022–PRESENT **Biochemical Society, UK**, 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.

Oral Presentations

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

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

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