

# ROMITA TREHAN

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[Linkedin](#)

## EDUCATION

- **MSc. Applied Biosciences and Biotechnology - Imperial College, London** 2022-2023  
Grade- **Distinction**  
**Modules:** Big Data in Biology (Genomics and metabolomics, NGS, Proteomics and Visualisation), AMR and Microbiology, Plant and Insect Biotechnology, Synthetic Biology (Loops and DNA Assembly), Drug Design and Development  
**Tutored Dissertation:** Gut Microbial Metabolites in Neurological Disorders
- **BSc.(Hons) in Microbiology - University of Delhi** 2018-2021  
Cumulative Grade Point Average- **8.52**  
**Modules:** Biochemistry, Microbial Physiology and Metabolism, Bacteriology, Molecular and Cell Biology, Genetics, Genomics, Bioinformatics, Inheritance Biology, Microbial and Industrial Biotechnology, Immunology, Food and Environmental Microbiology, Medical Microbiology and Recombinant DNA technology

## EXPERIENCES

- ❖ **Studying the effect of visual stimuli on *Drosophila* navigation strategy** **(April 2024- Present)**  
*PhD Student- Haberkern and Ache Lab, Julius-Maximilian-University Würzburg*
- ❖ **Earthwatch Europe** **(Jan 2024 - March 2024)**  
*Researcher- Science, Innovation and Policy*
  - Currently contributing to research and bio-based industrial innovation projects ProBleu and CHEERS, writing reports and publications in close collaboration with all members of the Innovation team and the current project partners.
  - Assisting with the project-proposal preparation processes by setting up meetings, working out timelines and curating and supplying organisational text
  - Identifying, coordinating and delivering dissemination opportunities and external communications to showcase project outputs in close collaboration with industrial and institutional partners, including at conferences and other events.
  - Identify and map research funding opportunities and make project-proposal information easily available to the team..
- ❖ **Systems Neuroscience- Studying the evolution of sleep in drosophila species** **(May 2023 - Sep 2023)**  
*Master's Project Gilestro Laboratory - under Dr. Giorgio Gilestro*
  - To determine the Evolutionary divergence and differences in various species of *Drosophila* in terms of their sleep patterns subject to starvation and mechanical sleep deprivation
  - Performing behaviour experiments on six species of *drosophila* using Ethoscopes on starvation diet
  - Employing electronics and 3D printing to build Optomoters and Ethoscopes
  - Fly Brain Dissection and Immunohistochemistry techniques for Antibody-based staining- Immunofluorescence for Heat shock protein and Octopamine in starved and control groups
  - Confocal Fluorescent microscopy for brain imaging and protein expression monitoring (Fiji for Image analysis)
  - Data analysis through R and Python languages: Analysis: `data.table`, `behavr`, `EnvStats`; Visualization: `ggplot2`, `ggetho`, `RColorBrewer`; Manipulation: `dplyr`, `tidyr`; Time Series Analysis: `scopr`, `zeitgebr`; Survival Analysis: `survival`; Data Import: `readr`; Miscellaneous: `sleepr`, `tictoc`
  - Genetic crosses, fly culture rearing, and stock maintenance
- ❖ **CSIR – Institute Of Microbial Technology (IMTECH)** **(Feb 2022 – Aug 2022)**  
*Science communication and Outreach fellow -AB-Open Lab under Dr. Anshu Bhardwaj*
  - Conducted research on Antimicrobial Resistance (AMR), with a focus on priority pathogens such as *Acinetobacter baumannii* using microbial databases and bioinformatics tools like AGORA2 and BugSigDB.
  - Galaxy Pipeline for 16S Analysis- experience with the Galaxy platform for 16S microbial analysis, specifically using nanopore data.
  - Kraken for K-mer extraction and analysis
  - Developed engaging lesson plans for school children on the basics of drugs, microbes, and infections, in collaboration with senior PhD researchers. Assessed learning through quizzes and creative assignments, resulting in a measurable improvement in students' understanding of the topics.
  - Successfully engaged students through hands-on activities and experiments, including zone of inhibition, hands-on-agar, and protein modeling through PyMol. Received positive feedback from students and teachers for the effectiveness of these activities in improving student engagement and understanding.
  - Planned and executed science communication projects and outreach activities, including writing international grants and judging a global competition for animation creation as part of the Jigyasa platform. Received recognition for successful project planning and execution.

- Developed an animated video short series using vfx on the history and threat of Antimicrobial Resistance (AMR) aimed towards secondary school students. Anticipated impact includes improved understanding of the scientific and social aspects of AMR among students.
- Conducted game-based learning assessment and QA testing for ArMor, an Antimicrobial Resistance (AMR) awareness game. Provided comprehensive game analysis, stress testing, issue and glitch reporting to the developer, resulting in significant improvements to the game.
- Made significant contributions to the understanding of phenotype-genotype correlation and drug resistance. Created a dashboard for the analysis and review of online resources on AMR, resulting in improved engagement and impact of these resources.

❖ **All India Institute of Medical Sciences (AIIMS)**

**(Sep 2021 - Nov 2021)**

**Research Intern- Mycology Laboratory, Department of Microbiology under Dr. Immaculata Xess**

Conducted research on *Candida auris*, a multidrug-resistant yeast causing nosocomial infections.

Key responsibilities and achievements include:

- Performed yeast processing, identification, DNA and RNA extraction (Freeze Thaw and Maggenome), DNA and RNA sequencing (Sanger sequencing) and sample preservation techniques, resulting in accurate identification of various *Candida* species. Use of MALDI-TOF for identification.
- KOH and LPCB Mounts, Microscopy (Gram staining and Fluorescence Microscopy) for identification and observation of the yeast species.
- Conducted statistical studies, data analysis, and management, as well as patient history analysis and drug safety testing, contributing to a comprehensive understanding of *Candida auris* infections and drug resistance.
- Applied advanced techniques such as PCR, AFST (Antifungal susceptibility testing), TDM (Therapeutic drug testing), and Galactomannan Elisa to evaluate the efficacy of different drugs against *Candida auris*, resulting in significant insights into effective treatment options.

❖ **Department of Biochemistry, Shivaji College, University of Delhi**

**(June 2021- July 2021)**

**Student Researcher**

- Conducted Research Survey on the Impact of COVID-19 on Reproductive Health
- Framed a hypothesis and designed a research proposal to investigate the impact of the COVID-19 pandemic on reproductive health. (Hypothesis driven research)
- Conducted a comprehensive literature review to identify key research gaps and develop a robust methodology for data collection and analysis.
- Successfully collected and analyzed data using a range of analytical techniques, including statistical analysis and data visualization.
- Reported findings in a clear and concise manner, highlighting key insights and recommendations for policymakers and healthcare practitioners.

❖ **Life Under Lens, Department of Microbiology, University of Delhi**

**(Sep 2019 - Mar 2021)**

**Editor**

- Conducted in-depth research on cutting-edge CRISPR technology and authored engaging content for the Annual Wall Magazine, receiving positive feedback from readers and editors.
- Demonstrated exceptional research and writing skills by authoring and editing articles on the timely and critical topic of "Pandemics and Artificial Intelligence," resulting in high readership and engagement.
- Successfully collaborated with a team of writers and editors to develop content for the annual magazine "Life Under Lens" on the subject of COVID-19, demonstrating excellent communication and project management abilities.

❖ **SciRio- The Scicomm Hub**

**(Sep 2021 - Nov 2021)**

**Project and Website Management Intern**

- Managed the official website and contributed to the development of the official e-commerce website for SciRio using Wordpress and InstaMojo
- Developed both backend and frontend modules for the e-commerce website, allowing customers to make direct payments via InstaMojo.
- Successfully organized and conducted the Bi-annual workshop SciComm Lite (October 2021), which included various interactive sessions and workshops aimed at building science communication skills among participants.
- Coordinated and moderated a panel discussion on building solutions to compensate for the lack of a science communication ecosystem in India, which featured prominent speakers from the field. SciComm Lite (October 2021) and Panel Discussion — Building Solutions to Compensate for the Lack of a SciComm Ecosystem in India

## **PUBLICATIONS**

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- Systematic Curation and Evaluation of Resources for Information, Education and Communication (IEC) on Antimicrobial Resistance (AMR) with Specific Focus on Games (***Accepted for Publication***) **(February 2024)**
- ArMor- A game on Antimicrobial Resistance (***Under preparation***) **(September 2023- Present)**

## **SKILLS**

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- **Professional Skills:**

**Technical Content Development:** Experienced in creating technical content, including reports, research papers, and documentation.

**STEM Workshop Leader:** Skilled in designing and leading engaging STEM workshops.

**Biological Databases:** Proficient in navigating and extracting valuable information from biological databases.

**Programming:** Skilled in Python and R programming for data analysis and visualization.

**Video & Photo Editing:** Competent in video and photo editing using tools like Wondershare Filmora and Adobe Premiere Pro.

**Data Visualization:** Proficient in creating informative dashboards and visual representations of data.

**Inclusion and Collaboration:** Adept at fostering inclusion and collaboration in research and project teams.

**Science Communication:** Strong communication skills to effectively convey scientific concepts to diverse audiences.

**Critical Thinking:** Demonstrated critical thinking and problem-solving skills

- **Tools and Software Proficiency:**

**Bioinformatics Databases:** NCBI/PDB/DDBJ, Uniprot, PDB

**Sequence Analysis:** BLAST, ClustalW, Phylip

**Gene and Genome Analysis:** Genscan, ORF Prediction, Glimmer, Primer Design

**Protein Structure:** PSI-PRED, Swissmodel, Molecular Visualization (Jmol), PROCHECK

**Functional Gene Prediction-** GENSCAN, GLIMMER

**Data Analysis:** NumPy, Pandas, ggplot2, Normal Distribution, t-test, Chi-Square-test, Wilcoxon test

**Video & Photo Editing:** Wondershare Filmora, Adobe Premiere Pro

**Data Presentation:** Advanced Excel and PowerPoint

- **Laboratory Skills:**

**Sample Handling:** Proficient in sample staining, micro pipetting, dilutions, microbial culture isolation, streaking, subculturing, and media preparation.

**Biomolecule Analysis:** Conducted tests for biomolecules, utilized microscopy techniques, and worked with MALDI-TOF and spectrophotometry.

**Molecular Biology:** Competent in DNA isolation, agarose gel electrophoresis, and SDS-PAGE.

**Chromatography:** Proficient in thin layer and column chromatography, as well as density gradient preparation.

**Microbiological Testing:** Conducted Ames Test, Replica Plating, Kirby-Bauer Test, and Dot-ELISA.

**Advanced Techniques:** Experience with 3D printing, fly husbandry, genetic crosses, ethoscope and optomotor building.

**Microscopy:** Proficient in electron microscopy, brightfield microscopy, phase-contrast microscopy, confocal microscopy, fluorescent microscopy, brain imaging, dissection, and sample mounting.

**Quality Assurance:** Ensured high-quality laboratory results and compliance with standards.

## **POSITIONS OF RESPONSIBILITY & EXTRA-CURRICULAR**

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1. Winner- Idea Challenge, Dark Side of AI, *Imperial Enterprise Lab* (May 2023)
2. Winner- Dragon's Den Business Pitch Competition, *Imperial College London* (Feb 2023)
3. Regular Blogger- Imperial student blogs (Feb-July 2023)
4. Feature Article - I, Science Magazine - Evolution of sleep (*Submitted*) (Sep 2023)
5. Vice-President, Department of Microbiology (2020-2021)
6. Editor, "Life Under Lens", Annual magazine of the Department of Microbiology (2019-2021)