Gagan Shetteppanavar

Curriculum Vitae

PERSONAL DETAILS

Birthday	July 17, 1999
Address	No. 10, Shakambari Nagar, Sarakki Layout, Banashankari, Bengaluru - 560078
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Mail	gagan.vishaya@gmail.com
Github	github.com/vs-gagan
LinkedIn	linkedin.com/in/vs-gagan

EDUCATION

Master of Science, Bioinformatics 2024-2025

University of York (Ongoing)

Percentage: 72.5% *(Tentative)*

Inegrated Masters of Science, Biology 2017-2022

Indian Institute of Science Education and Research, Thiruvananthapuram

CGPA : 6.93

Pre-University college 2015-2017

Reva Indedpendent PU college, Bengaluru

Percentage : 63%

High School 2012-2015

Mayoor School, Raipur

CGPA : 8.6

RESEARCH EXPERIENCE

- Performed **integrative genomic analysis comparing WGS and WXS platforms in Muscle-Invasive Bladder Cancer** under the supervision of Dr. Andrew Mason, University of York, June - September 2025
  - Processed and analyzed **whole-genome and whole-exome sequencing data** from 408 TCGA-BLCA samples in Mutation Annotation Format (MAF), implementing comprehensive filtering strategies for oncogene-specific analysis.
  - Discovered **platform-specific detection biases**, with WGS exclusively identifying dinucleotide and trinucleotide polymorphisms and demonstrating superior sensitivity for frameshift insertions/deletions.
  - Identified **recurrent mutation hotspots in regulatory elements** through quantile-based frequency analysis (99th percentile threshold), cross-referencing with ENCODE candidate cis-regulatory elements database.
  - Executed **mutational signature deconvolution** via the SIGNAL online platform, generating 96-trinucleotide context matrices and attributing signatures to COSMIC reference profiles.

  - Developed proficiency in R-based bioinformatics workflows, genomic data integration, statistical analysis of sequencing platform performance, and translational cancer genomics.

- Constructed and analysed a **G-box specific Gene Regulation Network in *Arabidopsis thaliana*** as part of a group project under the supervision of Dr. Daphne Ezer, university of York, February-May 2025
  - Generated a seedling-stage-specific Gene Regulatory Network using **single-cell RNA-seq data**, focusing on genes regulated by perfect G-box elements and transcription factors from the bHLH and bZIP families.
  - Integrated stage-specific networks produced by the team into a unified **Core Network**, capturing conserved regulatory interactions across developmental stages.
  - Analysed the structure and functional roles of the network using **centrality metrics** and **gene ontology enrichment** to uncover key regulators and biological processes.
  - **Validated and benchmarked** the Core Network against a published network and DNA Affinity Purification Sequencing (DAP-seq) data.
  - Gained hands-on experience in network biology, developmental gene regulation, and large-scale team-based data integration in plant systems biology.
  - Collaborated in an diverse team and presented the project findings at the 14th Northern Bioinformatics User Group (nBUG) conference.

- Studied the **Effect of replication-transcription conflicts on gene expression noise in Bacillus subtilis** as part of my **masters thesis** under the guidance of **Dr. Sabari Sankar Thirupathy**, **Indian Institute of Science Education and Research, Thiruvananthapuram**, August-April 2021
  - Characterized the impact of Hydroxyurea on growth rate and plating efficiency of *Bacillus subtilis*, gaining hands-on experience in bacterial culture techniques.
  - Independently captured bacterial images using epi-fluorescence and differential interference contrast microscopy, followed by comprehensive image analysis.
  - Adapted and standardized protocols for Hydroxyurea treatment and imaging, demonstrating strong skills in experimental design and optimization.
  - Gained insights into the stochastic nature of biological processes and the role of physical interactions in gene expression variability.
  - Collaborated within a research team, working closely with my Ph.D. advisor and a fellow MSc student, strengthening both independent research and teamwork skills.

- Charecterised the ΔMfd *Bacillus subitilis* strains for plating efficiency and growth rate as a summer intern under the guidance of **Dr. Sabari Sankar Thirupathy**, **Indian Institute of Science Education and Research, Thiruvananthapuram**, June - July 2019

- Participated in the collection and survey of seagrass in Palk Bay and Gulf of Mannar for characterising the distribution and abundance of Dugong and Olive Ridley Turtle specific food sources as summer intern for **Campa-Dugong and Seagrass Recovery Project** under **Dr. K. Sivakumar, Wildlife Institute of India**, April 2019

- Worked on project: **Optimum escape theory in grasshoppers** as a part of course work, to analyse the relation between the angle of approach of threat and the angle of angle and distance of initial jump to escape, under the supervision of **Dr. Ullasa Kodandaramaiah and Prof. Hema Somanathan**, **Indian Institute of Science Education and Research, Thiruvananthapuram**, August - November 2017

ACEDEMIC ACHIEVEMENTS

- Gold Medal in International Math Olympiad, 2013
- 98.8 percentile in ASSET(Assessment of Scholastic Skills through Educational Testing) examination, 2014
- Test of English as a Foreign Language (TOFEL) score : 105/120 (29,26,25,27)
- General Graduate Record Examinations (GRE) score : 317 (156,157,2.0) (Expired 2024)

WORKSHOPS AND CONFERENCES ATTENDED

- Frontier Symposium in Biology, January 2020
- Basic Bioinformatics course on 'INTRODUCTION TO GENOMICS AND BIOINFORMATICS, 2021' by C-CAMP
- Foundation course on 3D Bio-printing by Next Big Innovation Labs
- Basic Image Analysis Course by C-CAMP
- Online ensembl workshop by IISER-TVM
- Frontier Symposium in Biology, April-May 2022
- Hands-on training on RNA Sequencing and Data Analysis by Clevergene
- Python for Biologists: Beginners Level by Nano Science and Technology Consortium
- Northern BUG 14: A network of bioinformaticians and users or bioinformatics services in the north of England.

SKILLS

Lab Skills	Plating efficiency analysis Growth curve analysis Differential interference contrast(DIC) microscopy Epifluorescence microscopy Protein and DNA quantification techniques
Software	Python R: RStudio and RStudio Server SQL Wolfram Mathematica MATLAB

Graphpad Prism
BLAST
Microsoft Office Suit
Graphic design softwares: Adobe Photoshop, Adobe Indesign
Media editing software: Adobe Audition, Adobe Premiere Pro

Languages English (fluent)
Hindi (native)
Kannada (native)

OTHER SKILLS AND EXPERIENCES

- Lead graphic designer for Sopanam, the official institute magazine of IISER-TVM (2018-2021)
- Graphic designer for the official science club (Anvesha), cultural club (Ishya) and Biology club (Proteus) at IISER-TVM (2019-2021)
- Co-designer of the Institute Annual Report (2019-2020) of IISER-TVM
- District level medalist in Judo
- Drummer for a college band
- Reviewer for college and student magazines