

B.Tech & M.Tech (Dual Degree), *Biotechnology*
Indian Institute of Technology Kharagpur, India
GPA: 8.64 (out of 10)

Jul 2012 - Apr 2017

RESEARCH EXPERIENCE

RESEARCH INTERN, [Institute for Systems Biology, Seattle](#)
[Dr. Gustavo Glusman, Leroy Hood's Group](#)

May '16–Jul '16

- Characterized *autosomal* sex-specific biases between male and female cohorts of 2000 whole-genome sequences from Complete Genomics and Illumina platforms.
- Analyzed *reference* coverage profiles and raw reads quality data, prepared controls, performed statistical analysis, and developed visualizations.

SENIOR THESIS, [Indian Institute of Technology Kharagpur](#)
[Prof. Amit Kumar Das](#), Structural Biology Lab.

Jul '16–present

- Investigating the role of structural and functional patterns — for example, sequence, secondary structure, hydrophobicity — in origin of knotted proteins and how they may influence the knotting mechanism. ([Talk](#))

RESEARCH Fellow [Indian Institute of Science, Bangalore](#)
[Prof. Sandya V. Visweswariah](#)

May '15–Jul '15

- Extracted, purified, and labeled the wild type and mutant (Q56C) Cytolysin A protein obtained from expression vectors in BL21(DE3) host strain. ([Report](#))
- Assessed lytic activity and qualitatively demonstrated a lipid phase dependent kinetic behavior of Cytolysin A; one of the foremost such study of the protein.

PROGRAMMING EXPERIENCE

DEVELOPER, [OpenSNP](#), [Open Bioinformatics Foundation](#)
[Summer of Code](#), [Google Inc.](#)

May '16–Aug '16

- Proposed project to [link Phenotypes to SNPs](#) in OpenSNP.org portal — a crowdfunded, open-data repository with over *90 stars* on GitHub and *4000 users*.
- Used text-mining to rank matches, implemented database models and backend changes in Rails framework, and developed frontend visualizations.

DEVELOPER AND RESEARCHER, [Wikipedia Human Gender Indicators](#)
[Wikimedia Foundation Inc.](#)

May '15–Jan '16

- [Analyzed](#) raw Wikidata information, as a part of \$ 22,500 Inspire Grant grant from Wikimedia foundation, to quantify gender biases in Wikipedia corpus.
- Performed statistical analysis, developed the [website](#) for showcasing results, and assisted in research and community efforts by writing research [paper](#), blog posts and reviewing reports.

CONTRIBUTOR, [Sequenceserver](#), [Wurm Lab](#)
[Dr. Yannick Wurm, QMUL, London](#)

Jun '14–present

- Contributed more than *115 commits* over an year—project has over *100 stars* on GitHub and *30 citations*—and co-authored the [research paper](#).
- Implemented BLAST+ output parser module, backend data-module in *Ruby*, and designed graphical overview scheme for BLAST hit information using [D3.js](#).

PUBLICATIONS

- Klein M, Gupta H, *Rai V*, Konieczny P, Zhu H. 2016. "Monitoring the Gender Gap with Wikidata Human Gender Indicators." OpenSym '16. whgi.wmflabs.org
- Priyam A, Woodcroft BJ, *Rai V*, Munagala A, Moghul I, Ter F, Gibbins MA, Moon H, Leonard G, Rumpf W & Wurm Y. 2015. "Sequenceserver: a modern graphical user interface for custom BLAST databases." biorXiv. sequenceserver.com

SKILLS

Bioinformatics, Systems Biology, Data Analysis, Data Visualization

Python (+scipy), R, Ruby, SQL, JavaScript, C, Shell scripting

GNU/Linux, Vim, Git, \LaTeX , CLI

CONFERENCES & WORKSHOPS

- Received Simons Foundation Fellowship to attend [Intelligent Systems for Molecular Biology](#) (ISMB) 2016 conference in Orlando, Florida.
- Attended Software Carpentry Workshop 2016, as a *Python and Git helper*, organized at Data Science Studio, eScience Institute, University of Washington.
- Two day workshop and lectures series ([WMCB 2016](#)) on trends in biological networks, computational protein design, and single cell data analysis at [IISER, Kolkata](#).
- Attended winter school on [Quantitative Systems Biology 2015](#) organized at International Centre for Theoretical Science, Bangalore in association with ICTP, Italy.
- Attended a seminar series on sequencing, biological networks, and metabolic engineering in a [Short Term Course on Computational Systems Biology](#) 2014 organized at IIT Kharagpur.

AWARDS & ACHIEVEMENTS

- *GATE Scholarship* by University Grants Commission, Ministry of Human Resource Development, India for pursuing master's degree.
- First place and third place in *ISCB Wikidata and Wikipedia Competition 2016* respectively at ISMB, Orlando, FL.
- Tuition fee waiver through *Merit-cum-Means Scholarship* for four consecutive years (2012-2016) to pursue undergraduate degree at IIT Kharagpur.
- Annual scholarship by Harsh & Payal Foundation and Sanmarg Publication Group towards support of my undergraduate degree.

EXTRA CURRICULAR ACTIVITIES

Core Team Member, [iGEM IIT Kharagpur](#) '15

- Wet lab team member and content writer for the iGEM IIT Kharagpur team.

Contributor, [Wikipedia](#) '12-'15

- Experienced editor with over 30 english articles and 1600+ edits.

Problem Setter, [Hackerrank](#) '15

- Authored Ruby & Python language, and Linux section tutorial problems.

Community Service, [National Service Scheme](#) '15

- Volunteered for teaching and community service for two years in nearby villages.