🌐 vivekiitkgp.github.io

Vivek Rai

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B.Tech & M.Tech, *Biotechnology*
Indian Institute of Technology Kharagpur, India
GPA: 8.65 (out of 10)   Apr 2012 - May 2017

Research Experience

Graduate Intern
May 2016–Jul 2016

Institute for Systems Biology, Seattle   Dr. Gustavo Glusman, Leroy Hood's Group

– Characterized *autosomal* sex-specific biases between male and female cohorts of 1000 whole-genome sequences for different technologies.
– Analyzed coverage profile, raw reads quality data, prepared controls, performed statistical analysis, and developed visualizations.

B.Tech Thesis
Aug 2015–present

Indian Institute of Technology Kharagpur   Prof. Amit Kumar Das

– Investigated the role of structural (e.g. sequences, secondary structures) and functional patterns in knotted proteins and how they may influence the knotting mechanism. (Talk)

BEST Fellow
May 2015–Jul 2015

Indian Institute of Science, Bangalore   Prof. Sandya V. Visweswariah

– Extracted, purified and labeled the wild type and mutant proteins obtained from expression vectors. (Report)
– Assessed lyctic 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
May 2016–Aug 2016

OpenSNP, Open Bioinformatics Foundation   Summer of Code, Google Inc.

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

Developer
May 2015–Jan 2016

Wikipedia Human Gender Indicators   Wikimedia Foundation Inc.

– 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
Jun 2014–present

Sequenceserver, Wurm Lab   Dr. Yannick Wurm, QMUL, London

– Contributed more than *115 commits* over an year—project has over *100 stars* and *40,000 downloads* on GitHub—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

- 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`

- 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`

Skills

Areas	Bioinformatics, Systems Biology, Data Analysis, Data Visualization
Languages	Python (+scipy), Ruby, SQL, JavaScript, R, MATLAB, BASH, C
Tools	GNU/Linux, MacOS, Vim, Git, LaTeX

Conferences and Seminars

ISMB Jul 2016	Received Simons Foundation Fellowship to attend Intelligent Systems for Molecular Biology 2016 conference in Orlando, Florida.
WMCB Jan 2015	Two day workshop and lectures series on trends in biological networks, computational protein design, and single cell data analysis.
ICTP-ICTS QSB Dec 2015	Attended Winter School on Quantitative Systems Biology 2015 organized at International Centre for Theoretical Science, Bangalore in association with ICTP, Italy.
Short Term Course Mar 2014	Attended a set of seminars on next-gen sequencing, interaction networks and computational tools as a part of Short Term Course on Computational Biology organized at IIT Kharagpur.

Awards and Achievements

2016	Awarded GATE Scholarship by University Grants Commisson, Ministry of Human Resource Development, India for pursuing master's degree.
2016	Awarded felicitation for winning first place and third place in ISCB Wikidata and Wikipedia article writing competition 2016 respectively at ISMB, Orlando, FL.

Extra-Curricular Activities

iGEM	Wet lab team member and content writer for the iGEM IIT Kharagpur team.	2015
Hackerrank	Author of language tutorial problems for Ruby, Python & Linux section.	2015
Wikipedia	Experienced editor with over 30 english articles and 1600+ edits.	2012–2015
metaKGP	Contributor and administrator of a wiki for the university.	2015
NSS	Volunteered for teaching and community service for two years in nearby villages.	2012-2014