Vivek Rai

2001 Huron Parkway
Ann Arbor
MI 48104

 734-846-5791
vivekrai@umich.edu
raivivek.com

Education

2022	**University of Michigan, Ann Arbor** Ph.D. in *Bioinformatics* M.S. in *Statistics*	GPA: 3.7/4
2017	**Indian Institute of Technology, Kharagpur** Dual Degree (B.Tech & M.Tech), *Biotechnology*	GPA: 8.62/10

Research Experience

2018-now   **University of Michigan**, Ph.D. Student   Ann Arbor, US
Mentor: Stephen CJ Parker, Ph.D

- Integrative analysis of chromatin accessibility profiles across skeletal, pancreatic, and adipose tissues to assess the functional effects of non-coding mutations in type-II diabetes (T2D) disease susceptibility.

2016-2017   **Indian Institute of Technology, Kharagpur**, Senior Thesis   Kharagpur, India
Mentor: Amit K. Das, Ph.D

- Characterized the roles of structural and functional patterns in the origin of knotted proteins and how they may influence the knotting mechanism. (Talk)

2016   **Institute for Systems Biology**, Summer Intern   Seattle, US
Mentor: Gustavo Glusman, Ph.D

- Analyzed systematic autosomal sex-specific biases in sequence coverage profiles in more than 2000 individual whole-genomes from Illumina and Complete Genomics.
- Discovered that biases were technical artefacts of read mapping process due to segmental duplication between autosomes and sex-chromosomes.

2015   **Indian Institute of Science**, B.E.S.T Fellow   Bangalore, India
Mentor: Sandhya S. Visweswariah, Ph.D

- Extracted, purified, and labeled the wild type and mutant (Q56C) Cytolysin-A, a bacterial pore-forming toxin, obtained from expression vectors in BL21(DE3) host strain.
- Demonstrated a lipid phase and C-terminal domain dependent kinetic behavior using ClyAQ56C mutant protein in calcein leakage assays with synthetic lipid vesicles and dynamic light scattering. (Report)

2015-2016   **Wikimedia** — Individual Engagement Grant
Team Leader: Maximilien Klein

- Quantified gender bias in Wikipedia corpus as a team member of $22,500 grant using Wikidata through statistical analysis, developed website, and assisted in research, and paper writing, editing and review.

Development Experience

2016	**Google Summer of Code**, OpenSNP — Student Developer Mentors: Bastian Greshake, Philip Bayer Project: Linking Phenotypes to Genotypes in OpenSNP (opensnp.org)
2015-2016	**Sequenceserver** — Wurm Lab, Queen Mary University of London, UK Mentors: Anurag Priyam, Yannick Wurm, Ph.D. Project: Sequenceserver: a modern graphical user interface for custom BLAST databases
2015-now	**Contributor** — Open Source Projects Afra, Bioconda, Scikit-bio, CobraPy, awesome-biology

Manuscripts

2018	Grüning, B., Dale, R., Sjödin, A., Chapman, B.A., Rowe, J., Tomkins-Tinch, C.H., Valieris, R., Köster, J., & **The Bioconda Team** (2018). Bioconda: sustainable and comprehensive software distribution for the life sciences. Nature Methods 15, 475.
2017	O'Neill, K., **Rai, V.**, & Kilpatrick, A. M. (2017). The International Society for Computational Biology and WikiProject Computational Biology: celebrating 10 years of collaboration towards open access. Bioinformatics, 33(15), 2429.
2016	Klein, M., Gupta, H., **Rai V.**, Konieczny, P., & Zhu, H. (2016, August). Monitoring the Gender Gap with Wikidata Human Gender Indicators. In Proceedings of the 12th International Symposium on Open Collaboration (p. 16). ACM. whgi.wmflabs.org
2015	Priyam, A., Woodcroft, B. J., **Rai V.**, ... & Wurm, Y. (2015). Sequenceserver: a modern graphical user interface for custom BLAST databases. Biorxiv, 033142. sequenceserver.com

Skills

interests	Statistical Analysis, Computational Genetics & Genomics, Data Science
languages	Python, R, Shell Scripting (BASH), Ruby, SQL
web	HTML/CSS, ReactJS, Static-site Development
tools	Snakemake, Unix CLI, Conda, Slurm, Singularity

Fellowships & Grants

2017	Simons-NCBS Travel Fellowship ($100) — NCBS, Bangalore
2016	Simons Foundation Travel Fellowship ($600) — ISMB 2016, Orlando, Florida
2016	GATE Scholarship ($2,500) — University Grants Commission, MHRD, India
2012-2016	Merit-cum-means Tuition Scholarship [4x] ($4,000) — IIT Kharagpur
2012-2016	Sanmarg Relief Scholarship [4x] ($2,000) — Harsh and Payal Foundation

Honors & Awards

2016	First place, Wikidata Competition ($300) — International Society for Computational Biology
2016	Third place, Wikipedia Competition ($200) — International Society for Computational Biology
2012	First place, Woodstock (Virtual Stock Trading Competition) — Kshitij, IIT Kharagpur
2010	Ram Avatar Pratibha Puraskar (excellence in Hindi language) — Sanmarg Pvt. Ltd.

Conferences & Workshops

2017	5th Simons-NCBS Monsoon School, Physics of Life 2017 — NCBS, Bangalore
2016	Intelligent Systems for Molecular Biology (ISMB), Orlando, Florida
2016	Workshop on Mathematical and Computational Biology (WMCB 2016) — IISER, Kolkata
2015	Winter school on Quantitative Systems Biology (QSB) 2015 — ICTS, Bangalore
2014	Short Term Course on Computational Systems Biology 2014 — IIT Kharagpur

Volunteer services

2018-now	Student Host (Ph.D. interview weekend) — DCM&B, Univ. of Michigan
2018-now	Girls Who Code – DCM&B, Univ. of Michigan
2018-now	Student Representative, Bioinformatics Seminar Committee — DCM&B, Univ. of Michigan
2018	Juror (India), Wiki Science Competition 2018 (wikisciencecompetition.org) — Wikimedia
2018	Contributor, Women in Science 2018 Editathon — AWIS, Univ. of Michigan
2012-2018	Editor (40+ articles and 1800+ edits) — English Wikipedia
2016	Co-organizer and Contributor, Wikipedia Editathon — ISMB 2016
2016	Python and Git Assistant, Software Carpentry Workshop 2016 — University of Washington
2012-2014	National Service Scheme — IIT Kharagpur

Professional Services

2018	Course (Tech) Reviewer, Python Hacks for Everyone — Packt Publishing
2015	Problem Author, Ruby and Python Challenge Section — HackerRank

Clubs

2018-now	Board Member, Michigan Argentine Tango Club (MATC) — Univ. of Michigan
2016	Co-founder, Co-maintainer, MetaKGP (metakgp.github.io) — IIT Kharagpur
2015	Core Team Member, iGEM Sythetic Biology Team — iGEM IIT Kharagpur
2015-2016	Captain, Opensoft — LBS Hall, IIT Kharagpur
2014	Core Team Member, Google Students Club — IIT Kharagpur
2013	English Team Member, Technology Literary Society (TLS) — IIT Kharagpur
2013	Product Design Team Member, ProDex — IIT Kharagpur