Samuel Bharti

sbharti@uab.edu | GitHub: /samuelbharti | LinkedIn: /samuelbharti

EDUCATION

2022 – Present
Doctor of Philosophy (Biomedical Engineering | Bioinformatics)
Department of Biomedical Engineering, The University of Alabama at Birmingham, Birmingham, Alabama, USA

2017 – 2021
Bachelor of Technology (Bioinformatics)
Amity Institute of Biotechnology, Amity University, Noida, India

RESEARCH EXPERIENCE

Feb 2023 – Present
Blazer Graduate Research Fellow, Center of Computational Genomics and Data Science, The University of Alabama at Birmingham, Alabama, USA

- Developing multi-omics integration tools and models for treatment and diagnostic of Neurofibromatosis Type 1 associated cancers.

Aug 2022 – Feb 2023
Blazer Graduate Research Fellow, Informatics Institute, The University of Alabama at Birmingham, Alabama, USA

- Attended and presented poster in 2 conferences, submitted 6 abstracts for research meetings. Worked on multiple projects in collaboration with researchers from our group and other research labs.

Aug 2020 – 2022
International Research Volunteer, AI.MED Lab, The University of Alabama at Birmingham, Alabama, USA

- Developed and designed user interface and network visualization module for PAGER 3.0.
- Developed and designed SEAS (Statistical Enrichment Analysis of Samples) software and documentation repository.
- Assisted in the framework for PAGER WEB APP.

Jan – Apr 2021
Student Researcher, Centre for Computational Biology and Bioinformatics, Amity University, Noida, India

- Design, Development and Data curation of GlucoKinaseDB (A curated database of glucokinase modulators).
- Development of PepEngine (A Bioactive peptide database).

Apr – Sep 2020
Student Researcher, SCIS, Jawaharlal Nehru University, Delhi, India

- Developed microarray analysis pipeline in R with a methodology to suggest sample category into Control and Experiment groups unlike manual grouping method in GEO2R. The pipeline was used to perform a meta-analysis of Parkinson's disease microarray data to identify blood biomarkers.

Apr 2019 – Jul 2020 *Student Researcher*, Systems Biology and Data Analytics Research Lab, Amity University, Noida, India

- Full-stack development of VIRdb2.0 (A comprehensive resource for Vitiligo)
- Developed R pipeline for analysis on Epidemiological modelling of COVID 19.
- Reconstructed genome-scale metabolic model (PluriMetNet) for human embryonic stem cell (hESC) and performed Flux balance analysis using COBRA toolbox in MATLAB.

PROFESSIONAL EXPERIENCE

Feb 2021 – Jan 2023 *Chief Technical Officer*, FundU Games Private Ltd., Delhi, India

Lead data-science and product development teams with a total of 8 employees at this early bird startup and trained interns recruited from top engineering schools in India. Responsible for prototype design and weekly product deployment on our AWS hosted server using docker containers.

Oct 2021 – Aug 2022 *Bioinformatics Engineer*, STEM-Away, Santa Clara, USA

After my 12-week internship as a technical lead in the bioinformatics pathway, I joined STEM-Away as a Bioinformatics Engineer on a freelance contract. My role involved course development under Bioinformatics and Data Science domains.

June – Aug 2021 *Technical Lead (Bioinformatics Pathway)*, STEM-Away, California, USA

Led a team of 40 international students with a high technical diversity to develop and design sMAP (An R shiny educational application for Microarray Data Analysis). It has been one-of-a-kind experience leading students and junior working professionals to collaborate accounting different time zones and deliver the final working product in just eight weeks.

Apr 2017 – Sep 2018 *Data Analyst*, Creature Retail Private Limited, Delhi, India

Managed the e-commerce platform profiles (Amazon, Flipkart, Snapdeal, ShopClues, and Paytm) of the company. Role involved data analysis of sales, product listing, and inventory management.

May – Jun 2018 *Data Operations Field Intern*, Park Smart, Delhi, India

Duties included data collection and compilation on the parking spots present in different areas of the city.

Apr – Jul 2017 *Data Operations Intern*, QuickDoc E-Healthcare Private Limited, Delhi, India

Role involved the promotion of the QuickDoc Healthcare App at the hospital clinics and the collection of user feedback from patients.

RESEARCH PUBLICATIONS

[1] Siddharth Yadav, **Samuel Bharti**, Puniti Mathur (2023). GlucoKinaseDB: A comprehensive, curated resource of glucokinase modulators for clinical and molecular research. Computational Biology and Chemistry https://doi.org/10.1016/j.compbiolchem.2023.107818

[2] **Samuel Bharti**, Nikita Krishnan, Arian Veyssi, Maryam Momeni, Sneha Raj (2022). sMAP: An interactive microarray data analysis tool for early-stage researchers. bioRxiv https://doi.org/10.1101/2022.05.27.492984

[3] Zongliang Yue, Radomir Slominski, **Samuel Bharti** and Jake Y Chen (2021). PAGER Web APP: An interactive, online gene set and network interpretation tool of high-throughput functional genomics results. Frontiers in Genetics https://www.frontiersin.org/articles/10.3389/fgene.2022.820361/abstract

[4] Siddharth Yadav, **Samuel Bharti**, Priyansh Srivastava & Puniti Mathur (2022). PepEngine: A Manually Curated Structural Database of Peptides Containing α, β- Dehydrophenylalanine (ΔPhe) and α-Amino Isobutyric Acid (Aib). International Journal of Peptide Research and Therapeutics. https://doi.org/10.1007/s10989-022-10362-9

[5] Nguyen, T. M., **Bharti, S.**, Yue, Z., Willey, C. D., & Chen, J. Y. (2021). Corrigendum: Statistical Enrichment Analysis of Samples: A General-Purpose Tool to Annotate Metadata Neighborhoods of Biological Samples. Frontiers in Big Data, 4, 804141. https://doi.org/10.3389/fdata.2021.804141

[6] **Bharti, S.**, Sengupta, A., Chugh, P., & Narad, P. (2020). PluriMetNet: A dynamic electronic model decrypting the metabolic variations in human embryonic stem cells (hESCs) at fluctuating oxygen concentrations. Journal of Biomolecular Structure and Dynamics, 1–9. https://doi.org/10.1080/07391102.2020.1860822

[7] Srivastava, P., Talwar, M., Yadav, A., Choudhary, A., Mohanty, S., **Bharti, S.**, Narad, P., & Sengupta, A. (2021). VIRdb 2.0: Interactive analysis of comorbidity conditions associated with vitiligo pathogenesis using co-expression network-based approach. F1000Research, 9, 1055. https://doi.org/10.12688/f1000research.25713.2

[8] **Bharti, S.**, Narad, P., Chugh, P., Choudhury, A., Bhatnagar, S., & Sengupta, A. (2020). Multi-parametric disease dynamics study and analysis of the COVID-19 epidemic and implementation of population-wide intrusions: The Indian perspective. MedRxiv, 2020.06.02.20120360. https://doi.org/10.1101/2020.06.02.20120360

AWARDS

- Travel Award of $300 USD to present the poster at CCTS Translational Training Symposium in Blioxi, MS.
- Blazer Graduate Research Fellowship award for 16 months from Aug 2022 to Dec 2023 by the University of Alabama at Birmingham.
- Travel Award to deliver a talk and present poster at NIH NHLBI Celebration Progenitor Cell and Translation Meeting.
- Travel Award of $300 USD to present the poster at CCTS Translational Training Symposium in Mobile, Alabama

SKILLS

Technical and Bioinformatics	• Programming Efficiency in R, Python, MATLAB, and Bash. • Cloud Computing and Instance setup on AWS, OpenStack. • Development of web servers/tools: R Shiny, Streamlit, PHP, React. • Data processing and analysis, Machine Learning, Data Visualization with broad knowledge of available libraries in R and JavaScript. • Virtualization: Virtual box, cloud-based (Google, AWS), Docker • Bioinformatics tools and databases, Clinical analysis, Variant Analysis. • Spatial Transcriptomics, scRNA-seq, RNA-seq, and Network Analysis. • Genome-scale metabolic model construction and flux analysis.
Test Scores and Competitive Exams	• *IELTS Academic*, Dec 2020, Score: 7.5 • *GATE 2021 Biotechnology, India*, Feb 2021, Result: Qualified
Language	Hindi [Native], English [C1], German [Elementary]

POSTER / CONFERENCE / WORKSHOP / TALK

Sep 27 – 29, 2023	CCTS Translational Training Symposium in Biloxi, MS Received a travel award and presented a poster on my work.
Jun 24 – 27, 2023	Attended 2023 NF Conference by Children Tumor Foundation.
Mar 27 – 29, 2023	NHLBI Celebration Progenitor Cell and Translation Meeting Received a travel reimbursement award to deliver talk and present poster at celebration meeting hosted by the University of Maryland, Baltimore.
Mar 15 – 17, 2023	MCBIOS 2023 Acceptance of multiple abstracts submitted as first and co-author to present in poster sessions and deliver talk at MCBIOS hosted in University of Dallas.
Mar 8 – 10, 2023	Alabama Academy of Science (AAS) Meeting Acceptance of poster to present at AAS 2023 hosting at Samford University.
Oct 27, 2022	O'Neal Research Retreat Presented poster at O'Neal Cancer Research Retreat hosted by University of Alabama at Birmingham.
Sep 14 – 16, 2022	CCTS Translational Training Symposium in Mobile, Alabama Received a travel award and presented a poster on my work.
Nov 23, 2021	AWS Deployment of R Shiny Bioinformatics App Delivered a talk on containerized bioinformatics and deployment using AWS followed by a live demo including launching an EC2 instance, connecting to instance, and docker container deployment.

June 22-25, 2020	Poster Presentation at RECOMB 2020 conference, Italy. Presented a poster highlighting the oxygen concentration levels at which the metabolic variation is observed in the hESC model [PluriMetNet] [YT]

LEADERSHIP AND VOLUNTEER EXPERIENCE

Apr 2023 – Present	*President*, Informatics Club, UAB, AL, USA Leading organization and collaborating with university dept. and Industries.
2022 – Mar 2023	*Core Member*, Informatics Club, UAB, AL, USA As a core member at informatics club my roles include organizing student engagement events and managing technical logistics.
Aug 2017 – 2021	*Class Representative*, AIB, Amity University, Noida, India Acted as a prime official channel of communication between faculty and rest of the class, for all monitoring formalities. I also represented the student body at the department level to put forward student issues and suggestions to improve the learning environment.
Jan – May 2019	*Volunteer*, Sachhi Saheli, Delhi, India (NGO) Volunteered in educating financially underprivileged girls aged 12 – 17 years about menstruation and its myths and taboos, in rural areas of city outskirts.
2017 – 2019	*Member*, Bioinformatics Club, Amity Institute of Biotechnology, Noida, IN Assisted in logistics and organization of club events at the university level.
Sep – Jan 2017	*Volunteer*, J.A.X. Healthcare Foundation (NGO) Assisted with cancer fundraising event coordination and planning.

FREELANCE

Feb – May 2022	*R Shiny Application Developer (Tutor)* Taught R programming and R Shiny Framework for business applications.
Sep – Nov 2021	*Bioinformatics Engineer (Remote)* Assisted a genomic data scientist in bioinformatics analysis and visualization.
May – Nov 2021	*Online Tutor* • Taught MATLAB and R programming to a Ph.D. student in Egypt. • Taught R programming and probability for the course STAT 230 to two students at the University of Waterloo for about 4 weeks.
May 2021	*R Shiny application developer* Developed a basic R shiny application for an Australian MBA student project on HR analytics.