Sishir Subedi

Bioinformatics professional with expertise in genomics, machine learning, and clinical diagnostics.

Vancouver, BC, Canada | +1 (236) 591-9729 | subedisishir@gmail.com

EDUCATION

PhD, Bioinformatics *2022 - 2025*
University of British Columbia, Vancouver, Canada (exp Aug 25)
- Fellowship, three first-author machine learning method papers

MS, Computer Science (GPA 3.75) *2016 - 2018*
Texas A&M University, College Station, USA
- Research assistantship, one co-author bioinformatics analysis paper
- Post-bacc, Computer Science (GPA 4.0) - University of Houston, USA *2014 - 2016*

BS, Molecular Biology (GPA 3.98) *2008 - 2011*
Texas Tech University, Lubbock, USA
- Awards for academic and research achievements

PROFESSIONAL EXPERIENCE

HOUSTON METHODIST HOSPITAL, TX, USA
Bioinformatician *Jun 2018 - Oct 2021*
- Design and implement bioinformatics pipelines for cancer assays, real-time pathology analytics, and clinical tools. Collaborate with internal cross-functional teams and third-party vendors for data management and systems integration in the CLIA-certified diagnostics laboratory.
- Sequencing (Illumina, Ion, Nanopore), pipelines (cancer panel, WES, TMB, COVID), workflow (Snakemake, Singularity, Conda), EHR/clinical reporting (Java, SQL, Epic systems, Tableau), HPC (PBS Torque, Azure)

CSAT SOLUTIONS, TX, USA
System Analyst Intern *Jun 2016 - Aug 2016*
- Develop a centralized management system to support engineering business units. SharePoint ECM.

NEUDESIC, TX, USA
IT Associate Intern *Dec 2014 - Apr 2016*
- Deliver technology-driven solutions to Fortune 100 energy clients, custom application support for risk assessment, analytics, and quality assurance. SQL Server with ASP.NET applications.

WASHINGTON UNIVERSITY IN ST LOUIS, MO, USA
Research Technician *Jun 2011 - May 2013*
- Investigate the molecular mechanisms of learning and memory. Training in molecular biology techniques (cloning, qRT-PCR, in situ hybridization, western blotting) including mouse genetics, cell culture, and fluorescence microscopy.

RESEARCH EXPERIENCE

BRITISH COLUMBIA CANCER CENTER, BC, CANADA

Graduate Research Assistant (PhD) *Jan 2022 - Present*

- Develop novel computational methods for large-scale omics data for interpretable deep learning models, scalable annotation, and multimodal data integration.
- Languages (Python, C++, R, Bash), deep learning (NNs, CNNs, RNNs, Transformers, GNNs, VAEs), libraries (PyTorch, Scikit-learn), data science (feature engineering, latent variable models, optimization)

TEXAS A&M UNIVERSITY, TX, USA

Graduate Research Assistant (MS) *Aug 2016 - Jan 2018*

- Develop machine learning methods to analyze the lifecycle of a pathogen. Bulk RNAseq analysis pipelines.

BAYLOR COLLEGE OF MEDICINE, TX, USA

Research Assistant *Jun 2013 - Jul 2014*

- First year of biomedical graduate program with rotation projects in three labs (in-vitro drug screening, neuronal stem cells, and genetic model for ALS disease). Transfer to pursue MS in CS.

TEXAS TECH HEALTH SCIENCE CENTER, TX, USA

TTU-HHMI Research Scholar (BS) *May 2009 - Apr 2011*

- Study of signaling pathways during embryogenesis in Drosophila. Genetic crosses and expression analysis.

SELECTED PUBLICATIONS

- **S Subedi** and Y Park. (2025) Decomposing patient heterogeneity of single-cell cancer data by cross-attention neural networks. medRxiv, 2025-06.

- **S Subedi**, T. Sumida, and Y Park. (2024) A scalable approach to topic modelling in single-cell data by approximate pseudobulk projection. Life Science Alliance, 7(10).

- **S Subedi** and Y Park. (2023) Single-cell pair-wise relationships untangled by composite embedding model. Iscience, 26(2).

- P. Christensen, R. Olsen, S. Long, **S Subedi**, *et al.* (2022) Delta variants of SARS-CoV-2 cause significantly increased vaccine breakthrough COVID-19 cases in Houston, Texas. The American journal of pathology 192 (2), 320-331.

- P. Hodjat, P. Christensen, **S. Subedi**, *et al.* (2021) The reemergence of seasonal respiratory viruses in Houston, Texas, after relaxing COVID-19 restrictions. Microbiology Spectrum 9 (2), e00430-21.

- S. Jianming, **S. Subedi**, *et al.* (2021) Identifying possible germline variants from tumor-only sequencing of hematological malignancies. Leukemia & Lymphoma 62, no. 2: 482-485.

- G. Eskandari, **S. Subedi**, *et al.* (2021) Implementing flowDensity for automated analysis of bone marrow lymphocyte population. Journal of Pathology Informatics 12 (1), 49.

- S. Long, R. Olsen, [et al., including **S.Subedi**]. (2020) Molecular Architecture of Early Dissemination and Massive Second Wave of the SARS-CoV-2 Virus in a Major Metropolitan Area. mBio, 11(6), e02707-20.

- A. Bandekar, **S. Subedi**, T. Ioerger, C. Sassetti. (2020) Cell cycle-associated expression patterns predict gene function in mycobacteria. Current Biology, 30(20), 3961-3971.

- E. Salazar, K. Perez, [et al., including **S. Subedi**]. (2020) Treatment of Coronavirus Disease 2019 (COVID-19) Patients with Convalescent Plasma. The American Journal of Pathology, 190(8), 1680–1690.

- P. Christensen, **S. Subedi**, *et al.* (2020) Development and Validation of Houston Methodist Variant Viewer version 3: Updates to an application to support clinical interpretation of next-generation sequencing data for cancer. JAMIA open, 3(2), 299-305.

- **S. Subedi**, Y. Li, C. Early, *et al.* (2016) System for the Analysis of EEG Data and Brain State Modeling. Emerging Trends in Computational Biology, Bioinformatics, and Systems Biology - Systems & Applications, 2016, 447-465.

- A. Chan, C. Early, **S. Subedi**, Y. Li, and H. Lin. (2015) Systematic analysis of machine learning algorithms on EEG data for brain state intelligence. IEEE International Conference on Bioinformatics and Biomedicine (BIBM) (pp. 793-799).

AWARDS

- Doctoral Fellowship (4YF), Faculty of Science - Bioinformatics, UBC, 2022

- Full Tuition Scholarship and Research Assistantship, Dept. of Computer Science, TAMU, 2016

- Outstanding Student in Computer Science, College of Sciences, UHD, 2015

- Full Tuition Scholarship Award and Research Assistantship, BCM, 2013

- Earl Camp Award for Outstanding Graduating Senior, Dept. of Biological Sciences, TTU, 2011

- Dr. Richard L. Blanton Endowed Scholarship for Undergraduate Research, HHMI-TTU Research, 2010

- Presidential Scholarship, College of Sciences, TTU, 2009