

# SAKIB MOSTAFA

Postdoctoral Scholar, Department of Radiation Oncology, Stanford School of Medicine  
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## RESEARCH HIGHLIGHTS

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- **First-author cancer AI research program** at Stanford School of Medicine, with three manuscripts under review at *Nature*, *Nature Biomedical Engineering*, and *Nature Computational Science*, and a fourth in preparation for *Science*.
- **Stanford Cancer Institute Innovation Award** (USD 75,000) for “A Deep Learning Framework for Highly Accurate Liquid Biopsy in Clinics”, December 2025.
- **Nominated by Stanford** as the sole institutional applicant in the Cancer Data Science category for the NCI Early K99 Pathway to Independence Award, February 2026 cycle.
- **Senior cancer collaborators at Stanford**, including Maximilian Diehn, Ash A. Alizadeh, Tarik F. Massoud, Erinn Rankin, Anusha Kalbasi, James Zou, and Lei Xing.
- **Two patent applications filed** through Stanford University on graph foundation models for heterogeneous graphs and on a deep learning system for tabular-to-image transformation.
- **Oral presentation** at the AAPM Annual Meeting 2026 (Vancouver, July 2026) on interpretable integration of molecular omics and medical imaging for disease analysis. **Invited talk** at the Stanford Cancer Institute Radiation and Cancer Biology Seminar Series, May 2026.
- **19 peer-reviewed publications** and one book chapter spanning cancer AI, multi-omics integration, plant phenomics, and neurological disorder diagnosis. Combined citations over 425.
- **Six years of university teaching and mentoring**, including a Lecturer position, seven teaching assistantships at the University of Saskatchewan, TA coordination for a 250-student course, and supervision of seven trainees at Stanford and three Canadian institutions.
- **Over CAD 168,500 in scholarships and USD 95,000 in research grants secured**, plus three Best Poster Awards across cancer, agriculture, and computer science symposia.

## EDUCATION

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### Doctor of Philosophy in Computer Science

May 2024

*Department of Computer Science, University of Saskatchewan, Canada*

Advisor: Debajyoti Mondal, Associate Professor

Committee: Ian Stavness, Julita Vassileva, Amin Elshorbagy, Mark Keil, Shangpeng Sun

Dissertation: Improving Deep Learning Classifiers for Plant Phenotyping using XAI Techniques

### Master of Science in Biomedical Engineering

August 2019

*Division of Biomedical Engineering, University of Saskatchewan, Canada*

Advisor: Fang-Xiang Wu, Professor

Committee: Chris Zhang, Khan Wahid, Michael Horsch

Dissertation: Machine Learning for the Diagnosis of Autism Spectrum Disorder

### Bachelor of Science in Electronics and Communication Engineering

May 2016

*Khulna University of Engineering and Technology, Bangladesh*

Advisor: A. B. M. Aowlad Hossain, Professor

Dissertation: Simulation Study on Nonlinear Ultrasound Imaging Using Different Synthetic Anatomical and Flow Phantoms

## PROFESSIONAL EXPERIENCE

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### Postdoctoral Scholar | Stanford School of Medicine

April 2025 — Present

*Department of Radiation Oncology, Stanford University, Stanford, CA, USA*

Supervisor: Md. Tauhidul Islam, Assistant Professor

- Developed Dynomap, an interpretable spatial representation learning framework that converts high dimensional cfRNA and biomedical tabular profiles into image-like representations for cancer detection, subtype prediction, and staging.
- Led liquid biopsy analyses across cfRNA cohorts, including RARE Seq and independent validation datasets, with emphasis on early detection, subtype classification, reduced gene panels, and biologically interpretable attribution maps.
- Designed multimodal AI architectures integrating molecular profiles with medical imaging to improve cancer classification and identify genetic programs linked to imaging phenotypes.
- Developed graph-to-image and graph foundation model frameworks for biological networks and heterogeneous graph-structured data, supporting scalable representation learning for multi-omics and cancer biology.

**Postdoctoral Associate | National Research Council Canada and University of Calgary** January 2024 — February 2025

*Aquatic and Crop Resource Development, NRC, Saskatoon, SK; Department of Biological Sciences, University of Calgary, AB*  
Supervisors: Sateesh Kagale (NRC) and Marcus Samuel (University of Calgary)

- Contributed to a consortium-led pangenome project involving the de novo assembly of 65 plus pea genomes to identify climate-resilient, high-yielding genotypes.
- Led large-scale genomic analysis covering assembly of 4,800 skim-sequenced lines, SNP calling, and genotype imputation for downstream association studies.
- Benchmarked SNP calling workflows that compared conventional variant calling techniques with deep learning methods such as DeepVariant for the pea genome.
- Developed deep learning imputation models tailored for plant genomic datasets, improving the accuracy and scalability of genotype prediction.

**Software Developer | Global Institute for Food Security** January 2023 — September 2023

*Saskatoon, SK, Canada*

Supervisor: Steven Xu, Technical Lead, Data Management and Analytics

- Maintained and optimized a cross-team genomic database, reducing downtime by 98 percent through robust software solutions.

**Software Developer | Nutrien Ag Solutions** January 2022 — December 2022

*Saskatoon, SK, Canada*

Supervisor: Zoe Ehlert, Manager, Marker Assisted Breeding

- Engineered solutions for genomic data management, reducing database error rates to 1 percent in marker-assisted breeding applications.

**Mitacs Research Intern | Nutrien Ag Solutions** August 2021 — December 2021

*Saskatoon, SK, Canada*

Supervisors: Ian Stavness (University of Saskatchewan) and Zoe Ehlert (Nutrien)

- Led the design and development of a Django-based web platform for storing and analyzing genomic data, in collaboration with interdisciplinary teams of plant and computer scientists.

## AWARDS AND FUNDING

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**Google Cloud Platform Research Grant (USD 20,000)** May 2026 — April 2027

*Stanford School of Medicine, Stanford University, USA*

**Stanford Cancer Institute Innovation Award (USD 75,000)** December 2025

*Stanford School of Medicine, Stanford University, USA*

**University of Saskatchewan Departmental Scholarship (CAD 46,000)** January 2020 — May 2024

*Department of Computer Science, University of Saskatchewan*

**Plant Phenotyping and Imaging Research Center Grant (CAD 46,000)** January 2020 — May 2024

*Global Institute for Food Security, University of Saskatchewan*

**Mitacs Business Strategy Internship (CAD 30,000)** August 2021 and January 2022

*Mitacs Accelerate*

<b>Devolved Scholarship (CAD 34,000)</b> <i>Division of Biomedical Engineering, University of Saskatchewan</i>	September 2017 — August 2019
<b>Faculty Scholarship (CAD 10,000)</b> <i>Khulna University of Engineering and Technology, Bangladesh</i>	May 2012 — January 2016
<b>Bangladesh Sweden Trust Fund (CAD 2,500)</b> <i>Government of Bangladesh</i>	September 2018
<b>Best Poster Award, Agriculture Research Day (CAD 1,500)</b> <i>College of Agriculture and Bioresources, University of Saskatchewan</i>	September 2023
<b>Best Poster Award, First Runner Up (CAD 1,000)</b> <i>7th Symposium on Innovations in Computer Science and Applied Computing, University of Saskatchewan</i>	September 2023
<b>Best Poster Award (CAD 700)</b> <i>6th Annual P2IRC Symposium, Global Institute for Food Security</i>	October 2021
<b>GIFS Gracias Award</b> <i>Global Institute for Food Security, University of Saskatchewan, for outstanding performance on Genguard development</i>	October 2023

## PUBLICATIONS

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Author name appears in bold. Citation counts and impact factors reflect public records as of 2026.

### Manuscripts Under Review at Nature-Family Journals

- Mostafa, S.**, Xing, L., and Islam, M. T. "Transformation of Biological Networks into Images via Semantic Cartography for Visual Interpretation and Scalable Deep Analysis." *Nature Computational Science*, under revision following first-round peer review. Preprint: <https://arxiv.org/abs/2512.07040>
- Mostafa, S.**, Xing, L., and Islam, M. T. "Language-Encoded Structural Topology Enables Generalizable Foundation Models for Graph-Structured Data." *Nature*, under editorial review. Preprint: <https://arxiv.org/abs/2604.06391>.
- Mostafa, S.**, Massoud, T. F., Diehn, M., Alizadeh, A. A., Xing, L., and Islam, M. T. "Vision-based Deep Learning Analysis of Unordered Biomedical Tabular Datasets via Optimal Spatial Cartography." *Nature Biomedical Engineering*, under external peer review. Preprint: <https://arxiv.org/abs/2603.22675>.

### Cancer and Biomedical AI

- Rahman, A., Rahman, A., **Mostafa, S.**, and Islam, M. T. "Cross-Cancer Computational Framework for Immune-Dysregulated Ecosystem Discovery and Therapeutic Prioritization." In *Proceedings of the 39th IEEE International Symposium on Computer-Based Medical Systems*, June 2026.

### Neurological Disorder Diagnosis and Medical Imaging

- Yin, W., **Mostafa, S.**, and Wu, F.-X. "Diagnosis of Autism Spectrum Disorder Based on Functional Brain Networks with Deep Learning." *Journal of Computational Biology*, vol. 28, no. 2, pp. 146-165, February 2021. DOI: 10.1089/cmb.2020.0252. [Citations: 162]
- Mostafa, S.**, Tang, L., and Wu, F.-X. "Diagnosis of Autism Spectrum Disorder Based on Eigenvalues of Brain Networks." *IEEE Access*, vol. 7, pp. 128474-128486, September 2019. DOI: 10.1109/ACCESS.2019.2940198. [Impact Factor 4.64; Q1 in Engineering; Citations: 98]
- Tang, L., **Mostafa, S.**, and Wu, F.-X. "A Network Clustering-Based Feature Selection Strategy for Classifying Autism Spectrum Disorder." *BMC Medical Genomics*, vol. 12, article 153, 2019. DOI: 10.1186/s12920-019-0598-0. [Citations: 13]
- Jahan, F., Shifat, S. M., Anannya, F. Z., **Mostafa, S.**, and Hasan, M. M. "Dementia Patient Health, Prescriptions ML Dataset: LightGBM Classification of XAI-based LIME and SHAP for Dementia Detection." In *Proceedings of the 11th International Conference on Networking, Systems, and Security*, pp. 197-202, December 2024. DOI: 10.1145/3704522.3704550
- Mostafa, S.**, Yin, W., and Wu, F.-X. "Autoencoder-Based Methods for Diagnosis of Autism Spectrum Disorder." In *Computational Advances in Bio and Medical Sciences (ICCABS 2019)*, Lecture Notes in Computer Science, vol. 12029, Springer, Cham. DOI: 10.1007/978-3-030-46165-2\_4. [Citations: 26]

Guo, H., Yin, W., **Mostafa, S.**, and Wu, F.-X. "Diagnosis of ASD from rs-fMRI Images Based on Brain Dynamic Networks." In *Bioinformatics Research and Applications (ISBRA 2020)*, Lecture Notes in Computer Science, vol. 12304, Springer, Cham. DOI: 10.1007/978-3-030-57821-3\_15.

### Plant Phenomics and Agricultural AI

**Mostafa, S.**, Mondal, D., Panjvani, K., Kochian, L., and Stavness, I. "Explainable Deep Learning in Plant Phenotyping." *Frontiers in Artificial Intelligence: AI in Food, Agriculture, and Water*, vol. 6, article 1203546, September 2023. DOI: 10.3389/frai.2023.1203546. [Citations: 80]

**Mostafa, S.**, Mondal, D., Beck, M., Bidinosti, C., Henry, C., and Stavness, I. "Leveraging Guided Backpropagation to Select Convolutional Neural Networks for Plant Classification." *Frontiers in Artificial Intelligence*, vol. 5, article 871162, May 2022. DOI: 10.3389/frai.2022.871162. [Impact Factor 3.77; Q2 in Artificial Intelligence; Citations: 23]

**Mostafa, S.**, Mondal, D., Beck, M., Bidinosti, C., Henry, C., and Stavness, I. "Visualizing Feature Maps for Model Selection in Convolutional Neural Networks." In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops*, pp. 1362-1371, October 2021. DOI: 10.1109/ICCVW54120.2021.00157. [Acceptance Rate 25 percent]

### Software Engineering and Methodological Computer Science

**Mostafa, S.**, Cynthia, S. T., Roy, B., and Mondal, D. "Feature Transformation for Improved Software Bug Detection Models." *Journal of Systems and Software*, vol. 219, 2025. DOI: 10.1016/j.jss.2024.112205. [Impact Factor 3.7; Q1 in Software Engineering]

**Mostafa, S.**, Fahim, M. A. N. I., and Hossain, A. B. M. A. "A New Chaos-Based Medical Image Encryption Scheme." In *Proceedings of the International Conference on Informatics, Electronics and Vision (ICIEV)*, September 2017. DOI: 10.1109/ICIEV.2017.8338573. [Citations: 7]

Fahim, M. A. N. I., **Mostafa, S.**, Tasnim, J., and Hossain, A. B. M. A. "Alignment of 3-D Scanning Data for Polygonal Mesh based on Modified Triangulation." In *Proceedings of the International Conference on Informatics, Electronics and Vision (ICIEV)*, September 2017. DOI: 10.1109/ICIEV.2017.8338574.

**Mostafa, S.**, Fahim, M. A. N. I., and Tasnim, J. "An Approach to Effective 3D Reconstruction Based on Point Cloud Merging." In *Proceedings of the IEEE International Women in Engineering Conference on Electrical and Computer Engineering*, December 2016. DOI: 10.1109/WIECON-ECE.2016.8009132.

Jahiruzzaman, M., Fahim, M. A. N. I., **Mostafa, S.**, and Hossain, A. B. M. A. "An Adaptive Reconfigurable Radix-2n FFT/IFFT Architecture." In *Proceedings of the IEEE International Conference on Informatics, Electronics and Vision*, 2016. DOI: 10.1109/ICIEV.2016.7760143.

Zahan, N., Hossain, A. B. M. A., and **Mostafa, S.** "Simulation Study on Nonlinear Ultrasound Imaging Using Different Realistic Synthetic Phantoms." In *Proceedings of the IEEE Women in Engineering Conference on Electrical and Computer Engineering*, December 2015. DOI: 10.1109/WIECON-ECE.2015.7443957.

### Book Chapter

**Mostafa, S.** and Wu, F.-X. "Diagnosis of Autism Spectrum Disorder with Convolutional Autoencoder and Structural MRI Images." In *Neural Engineering Techniques for Autism Spectrum Disorder*, 1st ed., vol. 1, A. S. El-Baz and J. S. Suri, Eds. Academic Press, 2021, pp. 23-38. DOI: 10.1016/B978-0-12-822822-7.00003-X. [Citations: 59]

### MANUSCRIPTS IN PREPARATION

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**Mostafa, S.**, Yesiloglu, R., Xing, L., Adeli, E., and Islam, M. T. "Streamlining Multi-Modal Model for Multi-Omics Integration." A novel Optimal Transport architecture that treats each omics modality as a distinct channel, improving prediction and surfacing genetic drivers that link imaging phenotypes to genomic features.

Xue, T., **Mostafa, S.**, Xing, L., and Islam, M. T. "Knowledge Graph Modulated Deep Learning for Limited-Sample Clinical Data Analysis." A GraphNode classifier that embeds global graph structure into node-level prediction to capture biological pathway information typically lost by conventional GNNs.

**Mostafa, S.**, Xing, L., and Islam, M. T. "A Vision Foundation Model for Biological Networks via Image Transformation of Graph Topology." A graph foundation model that transforms biological networks into images for training with vision foundation models, outperforming current graph neural networks across benchmarks.

**Mostafa, S.**, Kirzinger, M., and Kagale, S. "Traditional vs Deep Learning: Benchmarking Aligners and SNP Callers for Low-Coverage Sequencing in Pea." Benchmarking DeepVariant against BCFTools and GATK across BWA, Minimap2, and Bowtie2 for the pea genome.

**Mostafa, S.**, Heydari, A., Tasnim, J., Rochan, M., and Mondal, D. "Leveraging Feature Explanation for Model Selection: An XAI Framework." An XAI framework that visualizes model decision-making and guides model selection using explainability techniques.

Rahman, A., **Mostafa, S.**, Xing, L., and Islam, M. T. "Genomap Integration Enhances Multi-Omics Visualization and Deep Analysis of Single-Cell Expression Data." Preprint DOI: 10.36227/techrxiv.176410489.90812149/v1.

## PATENTS

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Islam, M. T., Xing, L., and **Mostafa, S.** "A Graph Foundation Model for Cross-Domain Node Representation Learning on Heterogeneous Graphs." Stanford OTL Docket 26-222, filed May 2026.

Islam, M. T., Xing, L., and **Mostafa, S.** "An End-to-End Deep Learning System for Transforming Tabular Data into Images for High-Performance Classification." Stanford OTL Docket 25-519, filed November 2025.

## INVITED TALKS AND PRESENTATIONS

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### Invited and Oral Presentations

**Mostafa, S.** "A Language-Encoded Structural Topology Enables Generalizable Foundation Models for Graph-Structured Data." Invited talk, *Stanford Cancer Institute Radiation and Cancer Biology Seminar Series*, May 2026.

**Mostafa, S.** and Islam, M. T. "Interpretable Integration of Molecular Omics and Medical Imaging for Disease Analysis." Oral presentation, *AAPM Annual Meeting 2026*, Vancouver, BC, Canada, July 2026.

**Mostafa, S.** "XAI Solutions for Deep Learning Models in Plant Phenotyping." Seminar, Department of Computer Science, University of Saskatchewan, April 2024.

**Mostafa, S.** "Deep Learning Solutions to Improve Plant Yield Using Multi-Omics Data." Seminar, Aquatic and Crop Resource Development, National Research Council, July 2023.

**Mostafa, S.** "Ways of Incorporating Deep Learning in Detecting Autism Spectrum Disorder." Seminar, Division of Biomedical Engineering, University of Saskatchewan, May 2019.

Kalve, S., Kirzinger, M., **Mostafa, S.**, et al. "Pisum 60 plus: Unlocking the Pea Pan-Genome for Crop Innovation." Presentation, *Plant and Animal Genome (PAG) Conference 2025*, San Diego, California, USA, January 2025.

### Posters

**Mostafa, S.**, Xue, T., and Islam, M. T. "Biologically Informed Graph Neural Network Construction Via Pathway-Based Gene Interaction Graph." Poster, *AAPM Annual Meeting 2026*, Vancouver, BC, Canada, July 2026.

**Mostafa, S.** and Islam, M. T. "Scalable and Interpretable Multimodal AI: Integrating Imaging and Genomics via Image-Based Encoding for Cancer and Disease Classification." Poster, *AACR Annual Meeting 2026*, San Diego, California, USA, April 2026.

**Mostafa, S.**, Xing, L., and Islam, M. T. "Transformation of Graphs to Images via Semantic Cartography for Visual Interpretation and Scalable Deep Analysis of Complex Networks." Poster, *2025 AI and Cancer Research Symposium, Stanford Cancer Institute*, Palo Alto, USA, November 2025.

Khalaj, M., **Mostafa, S.**, Mondal, D., and Stavness, I. "Towards Federated Learning for Privacy-Preserving Analysis of Agricultural Data." Poster, *Agriculture Research Day, College of Agriculture and Bioresources*, University of Saskatchewan, September 2023. [Best Poster Award]

Khalaj, M., **Mostafa, S.**, Mondal, D., and Stavness, I. "Towards Federated Learning for Privacy-Preserving Analysis of Agricultural Data: Classic Machine Learning Motivation for FL." Poster, *7th Symposium on Innovations in Computer Science and Applied Computing*, University of Saskatchewan, September 2023. [Best Poster Award, First Runner Up]

**Mostafa, S.** and Mondal, D. "Pathways to Improve the Explainability of Deep Learning Models in Plant Phenotyping." Poster, *2023 P2IRC Symposium*, University of Saskatchewan, October 2023.

**Mostafa, S., Mondal, D., Beck, M., Bidinosti, C., Henry, C., and Stavness, I.** "Visualizing Feature Maps for Model Selection in Convolutional Neural Networks." Poster, *2022 P2IRC Symposium*, University of Saskatchewan, 2022. [Best Poster Award]

## SELECTED STANFORD CANCER COLLABORATIONS

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- **Lei Xing**, Jacob Haimson & Sarah S. Donaldson Professor of Medical Physics, Department of Radiation Oncology, Stanford University. Senior author on three Nature-family submissions.
- **Maximilian Diehn**, Jack, Lulu & Sam Willson Professor in Cancer Biology and Vice Chair, Department of Radiation Oncology, Stanford University. Co-author on Nature Biomedical Engineering submission. Internationally recognized for thoracic oncology and ctDNA-based early detection.
- **Ash A. Alizadeh**, Moghadam Family Professor of Medicine, Oncology, and Hematology, Stanford University. Co-author on Nature Biomedical Engineering submission. Pioneering work on circulating tumor DNA and cancer molecular profiling.
- **Tarik F. Massoud**, Professor of Neuroradiology and Molecular Imaging in the Department of Radiology, Stanford University School of Medicine. Co-author on Nature Biomedical Engineering submission. Leader in molecular and translational imaging.
- **Erinn Rankin**, Associate Professor, Departments of Radiation Oncology and Obstetrics and Gynecology, Stanford University. Active collaborator on tumor microenvironment and metastasis.
- **Anusha Kalbasi**, Associate Professor, Department of Radiation Oncology, Stanford University. Active collaborator on engineered cell therapies and sarcoma.
- **James Zou**, Associate Professor of Biomedical Data Science, Stanford University. Active collaborator on machine learning for biomedical applications.
- **Mohammad Esfahani**, Assistant Professor of Department of Radiation Oncology, Stanford University. Active collaborator on cancer multi-omics analysis.

## TEACHING EXPERIENCE

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**Guest Lecturer, AI and Data Driven Methods in Biomedical Imaging and Physics (BMP 254)** 2026

*Department of Radiation Oncology, Stanford School of Medicine*

Delivered a guest lecture on graph-based methods in medical science, covering biological network representation, graph neural networks, and applications to multi-omics and medical imaging integration.

**Lecturer, Department of Computer Science and Engineering** June 2016 — August 2017

*Bangladesh University, Bangladesh*

Designed and delivered seven undergraduate courses, supervised undergraduate thesis projects, and evaluated midterm and final examinations.

Courses taught: Image Processing, Artificial Intelligence, VLSI Design, Digital Electronics and Logic, Digital Signal Processing, Fundamentals of Computer, Numerical Methods.

**TA Coordinator, Introduction to Computer Science (CMPT 141)** September 2020 — April 2021

*Department of Computer Science, University of Saskatchewan*

Managed a team of 13 teaching assistants for a 250-student course, ensured consistent grading, distributed marking tasks, and facilitated student communication.

**Guest Lecturer, Information Visualization (CMPT 384)** March 2023

*Department of Computer Science, University of Saskatchewan*

Presented deep learning visualization techniques and their application to digital agriculture.

### Additional Teaching Assistantships, University of Saskatchewan

- Image Processing and Computer Vision (CMPT 487/819), Fall 2023.
- Introduction to Artificial Intelligence (CMPT 317), Winter 2023.
- Algorithm Design Analysis and Correctness (CMPT 360), Fall 2022.
- Principles of Computer Science (CMPT 145), Winter 2022.
- Deep Learning and Applications (CMPT 498/898), Fall 2021.
- Introduction to Computer Science (CMPT 141), Winter 2020.

## MENTORING

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- **Ridvan Yesiloglu**, PhD Student. Faculty advisor: Md. Tauhidul Islam. Affiliation: Stanford School of Medicine, USA.
- **Tracy Xue**, Assistant Clinical Research Coordinator. Faculty advisor: Md. Tauhidul Islam. Affiliation: Stanford School of Medicine, USA.
- **Ariana Rahman**, Undergraduate Student. Faculty advisor: Md. Tauhidul Islam. Affiliation: Stanford School of Medicine, USA.
- **Arman Heydari**, Master's Student. Faculty advisor: Debajyoti Mondal. Affiliation: University of Saskatchewan, Canada.
- **Mehdi Khalaj**, Undergraduate Student. Faculty advisor: Ian Stavness. Affiliation: University of Saskatchewan, Canada.
- **Shagufta Zahid**, Undergraduate Student. Faculty advisor: Sakib Mostafa. Affiliation: Bangladesh University, Bangladesh.
- **Bipul Dutta**, Undergraduate Student. Faculty advisor: Sakib Mostafa. Affiliation: Bangladesh University, Bangladesh.

## SERVICE AND LEADERSHIP

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### Peer Review

- **Journals:** ACM Transactions on Computing for Healthcare (1), IEEE Transactions on Emerging Topics in Computational Intelligence (1), IEEE Access (8), Frontiers in Neuroscience: Brain Imaging Methods (2), Frontiers in Plant Science (2), Elsevier Neurocomputing (2), BioMed Central Plant Methods (1).
- **Conferences:** 32nd Canadian Conference on Computational Geometry (1), IEEE International Conference on Bioinformatics and Biomedicine (2), International Conference on Computational Advances in Bio and Medical Sciences (1).

### Conference and Event Organization

- Research Fest Organizer, Computer Science Graduate Council, University of Saskatchewan, August 2021.
- Global Village Organizer, University of Saskatchewan Student Union, March 2021.
- Local Organizer, 32nd Canadian Conference on Computational Geometry, University of Saskatchewan, August 2020.
- Local Organizer, IEEE Conference on Electrical Information and Communication Technologies, Khulna University of Engineering and Technology, December 2015.

### Leadership Roles

- Vice President (Social), Computer Science Graduate Council, University of Saskatchewan, October 2020 to September 2021.
- President, Bangladesh Students Association of the University of Saskatchewan, August 2020 to July 2021.
- Vice President, Bangladesh Students Association of the University of Saskatchewan, July 2018 to August 2019.

## MEDIA COVERAGE

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- "[Diving into deep learning: USask research](#)," *USask News*, 2022.
- "[Unpacking the black box of AI: Would you trust AI with your cancer diagnosis?](#)" *USask College of Arts and Science News*, 2025.
- "[This U of S grad wants to ensure you can trust AI with your cancer diagnosis](#)" *The Morning Edition Saskatchewan with Adam Hunter, CBC Radio*, October 2025.
- "U of S grad ensures trust in AI with cancer diagnosis" *The Saskatoon Morning by Stephanie Massicotte, CBC Radio One*, October 2025.

## BROADER ACADEMIC AND INDUSTRIAL COLLABORATIONS

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*Stanford collaborators are listed separately under Selected Stanford Cancer Collaborations. The list below covers external collaborators across PhD and postdoctoral programs.*

### Academic

Marcus Samuel and Muhammad Jamshed (University of Calgary); Sateesh Kagale (National Research Council Canada); Leon Kochian, Wutao Yin, Chanchal Roy, Banani Roy, Julita Vassileva, Amin Elshorbagy, Kishore Gali, Mehdi Khalaj, Mrigank

Rochan (University of Saskatchewan); Rajeev Varshney (Murdoch University); Murukarthick Jayakodi (Texas A and M University); Christopher Henry, Christopher Bidinosti, Michael Alexander Beck (University of Manitoba); Laura Botigué (Centre for Research in Agricultural Genomics); Masud An Nur Islam Fahim (University of Vaasa); Shangpeng Sun (McGill University).

## Industrial

William Van Der Camp (Google); Sanu Arora (John Innes Centre); Raju Soolanayakanahally (Agriculture and Agri-Food Canada); Pankaj Bhowmik, David Konkin, Sampath Perumal, Shweta Kalve (National Research Council); Karim Panjvani, Kevin Koh (Global Institute for Food Security); Marin Pecar (NRGene); Jarin Tasnim (Callian AT).

## TRAINING AND CERTIFICATION

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- Software Analytics Research (SOAR), University of Saskatchewan, Canada.
- Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS 2), Government of Canada.

## TECHNICAL SKILLS

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- **Research Areas:** Interpretable AI, cancer liquid biopsy, cfRNA and ctDNA modeling, multimodal cancer AI, diagnostic imaging integration, digital pathology analytics, multi-omics integration, graph foundation models, spatial representation learning, explainable AI, cancer genomics, computational biology.
- **Programming:** Python, C++, MATLAB, JavaScript, MySQL, SQL.
- **Deep Learning Frameworks:** PyTorch, TensorFlow, Keras, Scikit-learn.
- **Scientific Computing:** NumPy, Pandas, NetworkX, iGraph, PIL, OpenCV.
- **High Performance Computing:** Slurm-based cluster computing, multi-GPU distributed training, multiprocessing and parallel pipelines, Snakemake workflow management for large genomic and biomedical datasets.
- **Web and Database:** Django, React JS, jQuery, Ajax.
- **Tools and Platforms:** AWS, Google Cloud Platform, Jupyter, Git, Linux.

## REFERENCES

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### Md. Tauhidul Islam

Postdoctoral Supervisor

*Assistant Professor*

*Department of Radiation Oncology, Stanford School of Medicine*

Email: tauhid@stanford.edu

### Lei Xing

Senior Research Collaborator

*Jacob Haimson & Sarah S. Donaldson Professor*

*Medical Physics, Department of Radiation Oncology, Stanford School of Medicine*

Email: lei@stanford.edu

### Debajyoti Mondal

PhD Supervisor

*Associate Professor*

*Department of Computer Science, University of Saskatchewan*

Email: d.mondal@usask.ca

### Ian Stavness

PhD Committee Member and Mitacs Supervisor

*Professor*

*Department of Computer Science, University of Saskatchewan*

Email: stavness@usask.ca