Tulika Kakati

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Education

July/2015 – Aug/2021	**Ph.D. in Computer Science and Engineering**, Tezpur University, India thesis: *Identification of Disease Biomarkers from Gene Expression Data using Machine Learning* Advisor: Prof. Dhruba K Bhattacharyya and Prof. Jugal K Kalita
September/2019 – June/2020	**Fulbright-Nehru Doctoral Research Fellow at University of California, Irvine**, Worked on two chapters of my Ph.D thesis Advisor: Prof. Trina M. Norden-Krichmar
Jul/2013 – Jun/2015	**M.Tech. in Computer Science and Engineering**, Tezpur University Thesis: *Co-expressed Patterns Identification Using Triclustering Approach in Microarray GST Data*. Advisor: Prof. Dhruba K Bhattacharyya CGPA: 9.42/10.
Jul/2009 – Jun/2013	**B.Tech. in Computer Science and Engineering**, Jorhat Enginnering College, India Percentage: 79.95%

Professional Experience

July/2021 – present	**Remote Academic Researcher** , University of California, Irvine, USA
March/2016 – present	**Superintending IT Engineer**, Oil India Limited, Duliajan, India
Auguest/2014 – February/2016	**Tezpur University - BIO-NET laboratory**, Tezpur, Assam, India *Senior Research Fellow* *Teaching duties* – Computer Networks, Web Technology, and Computer Architecture

Research Publications

Journal Articles

1. **Tulika** Kakati, Dhruba K Bhattacharyya and Jugal K Kalita. 'X-Module: A novel fusion measure to associate co-expressed gene modules from condition-specific expression profiles'. In: *Journal of Biosciences* 45.1 (2020), p. 33.
2. **Tulika** Kakati, Dhruba K Bhattacharyya, Pankaj Barah and Jugal K Kalita. 'Comparison of Methods for Differential Co-expression Analysis for Disease Biomarker Prediction'. In: *Computers in biology and medicine* 113 (2019), p. 103380.
3. **Tulika** Kakati, Hasin A Ahmed, Dhruba K Bhattacharyya and Jugal K Kalita. 'THD-Tricluster: A Robust Triclustering Technique and Its Application in Condition Specific Change Analysis in HIV-1 Progression Data'. In: *Computational Biology and Chemistry* 75 (2018). https://www.sciencedirect.com/science/article/pii/S1476927115302243, pp. 154–167.
4. **Tulika** Kakati, Hirak Kashyap and Dhruba K Bhattacharyya. 'THD-Module Extractor: An Application for CEN Module Extraction and Interesting Gene Identification for Alzheimer's Disease'. In: *Scientific reports* 6 (2016). https://www.nature.com/articles/srep38046, p. 38046.

Conference Articles/Posters

1. **Tulika** Kakati, Zhang-Xu Liu, Jugal K Kalita, Dhruba K Bhattacharyya, Timothy R. Morgan and Trina M. Norden-Krichmer. 'Pathway analysis enhances characterization of cell types and sample groups in single-cell RNA sequencing'. In: *Abstract (2021-A-1333-ASHG) accepted for a poster presentation at the ASHG 2021 Virtual Meeting*. 2021.
2. **Tulika** Kakati, Dhruba K Bhattacharyya, Jugal K Kalita and Trina M. Norden-Krichmer. 'DEGnext: Classification of Differentially Expressed Genes using a Convolutional Neural Network'. In: *Abstract (2020-A-1400-ASHG poster) accepted for a poster presentation at the ASHG 2020 Virtual Meeting*. 2020.
3. **Tulika** Kakati, Dhruba K Bhattacharyya and Jugal K Kalita. 'DEGnet: Identifying Differentially Expressed Genes using Deep Neural Network from RNA-Seq Datasets'. In: *Proceedings of the 8th International Conference on Pattern Recognition and Machine Intelligence*. 2019.
4. **Tulika** Kakati, Hasin A Ahmed, Dhruba K Bhattacharyya and Jugal K Kalita. 'A Fast Gene Expression Analysis using Parallel Biclustering and Distributed Triclustering Approach'. In: *Proceedings of the Second International Conference on Information and Communication Technology for Competitive Strategies*. https://dl.acm.org/citation.cfm?id=2905182. ACM. 2016, p. 122.

Pre-print Articles

1. **Tulika** Kakati, Zhang Xu Liu, Jugal K Kalita, Dhruba K Bhattacharyya, Timothy R. Morgan and Trina M Norden-Krichmar. *Single-cell RNA sequencing analyses to identify potential biomarkers in PBMCs from liver diseases*. 2021.
2. **Tulika** Kakati, Dhruba K Bhattacharyya and Jugal K Kalita. *A Unified Approach to Identify Phenotype-specific miRNA Biomarkers Related to Neurodegenerative Diseases*. 2021.
3. **Tulika** Kakati, Dhruba K Bhattacharyya, Jugal K Kalita and Trina M Norden-Krichmar. *Classification of Differentially Expressed Genes from RNA-seq data using a Convolutional Neural Network with Transfer Learning*. 2021.

Technical Skills

Programming languages	PYTHON, C, C++, C#, HTML
Other libraries and tools	R, Matlab, PYTORCH, ASP.NET, SAP, VMware Cloud Foundation 4.0 and Latex

Awards, Fellowships, and Grants

Aug/2020	Recipient of Developing Country Award for the American Society of Human Genetics (ASHG) 2020 Virtual Meeting held from October 27-30, 2020.
September/2019 - June/2020	Fulbright-Nehru Doctoral Research Fellow at University of California, Irvine, USA 92617
December/2017	Travel Grant to attend NeurIPS WiML workshop held on Long Beach, California, USA
September/2015 - February/2016	Senior research fellowship – MHRD Sponsored Centre of Excellence under FAST project entitled "Machine Learning Research and Big Data Analysis",
January/2015	AICTE NEQIP Scholarship by Tezpur University
August/2009-July/2013	Scholarship by Directorate of Technical Education for studies in Jorhat Engineering College
2007	Recipient of Scholarship for Meritorious Students in class X by Government of Assam, India

Miscellaneous

Workshops attended

2020 I presented poster on “Classification of Differentially Expressed Genes using a Convolutional Neural Network” and attended The American Society of Human Genetics (ASHG) Virtual meeting 2020.

I presented my Phd research ”Gene Expression Analysis using Machine Learning to identify Disease Biomarkers” at ACM Conference on Health, Inference, and Learning (CHIL) Doctoral Symposium on July 23/24 2020 virtually.

2017 I was invited to present poster on “Unsupervised Density and Semantic Analysis of Co-expression Network for Identifying Gene Biomarkers of Alzheimer’s Disease” and attended WiML workshop held on Long Beach California, USA.

2016 Invited to present poster on “A BDA Framework to Analyze Gene Co-expression and PPI Network: An Application to Disease Specific Module Ranking” and attended workshop on Women in Computing by ACM-W held at IIT Guwahati, India

2014 Regional training programme cum workshop on Shodhganga and anti-plagiarism software, held at Tezpur University, India

2011 Attended workshop on ETHICAL HACKING & INFORMATION SECURITY conducted by The Appin Technology Institute held from 03-04 April, 2011 at Jorhat Engineering College

Professional activity

2014 Certified “SIX SIGMA GREEN BELT” under Indian Statistical Institute, Bangalore held at Tezpur University