Biographical Sketch

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(a) Summary

In today's world, data driven insights is generating more innovations than ever. Data is key in deriving competitive advantage for enterprises today and is being used in the realm of law enforcement, personalization of learning, recommendation engines, or providing improved customer service. With the advent of big data technologies, enterprises are collecting data at various levels of granularity from all possible sources, resulting in ever-growing data repositories. This massive scale up of data offers a plethora of research problems, called big data challenges, which form the basis for my research. Typical supervised models require large amounts of labeled data and many iterations of learning (i.e., high learning costs) to train their large numbers of parameters. Such methods severely hinder the scalability of the models, making them fundamentally difficult to adapt automatically to continuously evolving data patterns or to learn new, emerging, or rare data categories, due to high annotation costs, limited labeled samples, and computationally expensive learning algorithms. The classification challenge increases further with increased privacy related issues in several application settings, where accurate identification/prediction is as as critical as data-privacy is. In many such problem settings, learning discriminative data characteristics by exploring only a limited number of annotated within a privacy preserving computational platform is incredibly challenging. My research in Artificial Intelligence (AI) and multi-modal data analytics aims to develop innovative models to adopt with the changing data pattern in an interactive learning setting by combining information from several heterogeneous sources (visual, textual, audio, behavioral etc.) for enabling a more holistic understanding of the learning process to propose sophisticated Machine Learning (ML) and AI techniques for various application domains including law enforcement, social media, education, and healthcare.

(b) Educational Background

Chennai Mathematical Institute, India M.Sc. Mathematics 2003
Indian Institute of Technology, Delhi, India M. Tech. Computer Science 2005
Indian Institute of Technology, Madras, India PhD. Computer Science 2013

(c) Appointments

2019-Present: Assistant Professor of Teaching & Research Dept. of Computer Science & Engineering, State University of New York at Buffalo, NY

2016-2019: Post Doctoral Fellow & Adjunct Faculty Dept. of Computer Science, University of North Carolina, Charlotte

2014-2016: Research Fellow School of Electrical and Electronics Engineering, Nanyang Technological University, Singapore

2012-2013: Scientist Aeronautical Development Establishment (ADE) Lab, Defense Research & Dev. Org., Govt. of India

(d) Publications Under Review

1. Balaji Arumugam, Sreyasee D.B, Junsong Yuan, **Attention-Aware Multi-modal Explainable Speaker Emotion Recognition in Video**, *IEEE International Conference on Big Data*, 2021.

2. Sai Eshwar Myneni, Sreyasee D.B, Junsong Yuan, **Multi-modal Self-Supervised Contrastive Learning for News Consistency Prediction**, *IEEE International Conference on Big Data*, 2021.

(e) Selected Publications

1. Sreyasee D.B, Junsong Yuan, **Proactive Student Persistence Prediction in MOOCs via Multi-Domain Adversarial Learning**, Accepted in *The Asian Conference on Pattern Recognition*, 2021.

2. Sreyasee D.B, Junsong Yuan, **Multi-modal Co-training for Fake News Identification using Attention-aware Fusion**, Accepted in *The Asian Conference on Pattern Recognition*, 2021.

3. Sreyasee D.B , Junsong Yuan, **Semantic Enhanced Sketch Based Image Retrieval with Incomplete Multimodal Query**, *IEEE Sixth International Conference on Multimedia Big Data (BigMM)* (**Invited Paper**), 2020.

4. Zhenhua Huang, Xun Wang, Liping Cai, Yong Tao, William J. Tolone, Mohammed El-Shambakey; Sreyasee D.B, Isaac Cho, **Blast Risk Assessment of Wood Residential Buildings: West Fertilizer Plant Explosion Case**, *Journal of Performance of Constructed Facilities*, Volume 34 (3), 2020, Pages 04020022.

5. Sreyasee D.B., William J. Tolone, Mohammed Elshambakey, Isaac Cho, Ashish Mahabal, George Djorgovski, **View-Adaptive Weighted Deep Transfer Learning for Distributed Time-Series Classification**, *COMPSAC: Data Driven Intelligence for a Smarter World*, 2019.

6. Sreyasee D.B, William J. Tolone, Ashish Mahabaly, Mohammed Elshambakey, Isaac Cho, Abdullah al-Raihan Nayeem, Junsong Yuan, George Djorgovski, **Multi-View, Generative, Transfer Learning for Distributed Time Series Classification**, *Big Data Transfer Learning (BDTL) Workshop, IEEE International Conference in BigData* (**BestPaper**), 2019.

7. Sreyasee D.B., William J. Tolone, **Multimodal, Context-Aware, Feature Representation Learning for Classification and Localization**, *IEEE International Conference in BigData*, 2019.

8. Sreyasee D.B, William J. Tolone, Ved Suhas Paranjpe; **Identifying Malicious Social Media Contents using Multi-View Context-Aware Active Learning**, *Future Generation Computer Systems-Special Issue on Cyber Threat Intelligence and Analytics*, Volume 100, 2019, Pages 365-379.

9. Omer T Karaguzel, Mohammed Elshambakey, Yimin Zhu, Tianzhen Hong, William J Tolone, Sreyasee D.B, Isaac Cho, Wenwen Dou, Haopeng Wang, Siliang Lu, Mohamed Khalefa, Yong Tao, **Open Computing Infrastructure for Sharing Data Analytics to Support Building Energy Simulations**, *Journal of Computing in Civil Engineering*, Volume 33 (6) 2019, Pages 04019037.

10. Sreyasee D.B., William J. Tolone, Mohammed Elshambakey, Isaac Cho, Ashish Mahabal, George Djorgovski, **Context-Aware Deep Sequence Learning with Multi-View Factor Pooling for Time Series Classification**, *IEEE Int. Conference in Big Data*, 2018 .

11. Sreyasee D.B, Junsong Yuan, Yicheng Huang, Jingjing Meng, Lingyu Duan, **Query Adaptive Multi-View Object Instance Search and Localization using Sketches**, *IEEE Tran. MultiMedia*, Volume 18 (4), 2018, Pages 726-737.

12. Sreyasee D.B, Bala Venkatram Balantrapu, William J. Tolone, Ashit Talukder, **Identifying Extremism in Social Media with Multi-view Context-Aware Subset Optimization**, *International Workshop on Big Data Analytic for Cyber Crime Investigation and Prevention, IEEE International Conference in Big Data* (**BestPaper**), 2017.

13. Sreyasee D.B, Ashit Talukder, Bala Venkatram Balantrapu, **Active Learning Based News Veracity Detection with Feature Weighting and Deep-Shallow Fusion**, *IEEE International Conference on Big Data*, 2017.

14. Sreyasee D.B, Junsong Yuan, Zhang Jiaqi, Yap-Peng Tan, **Context-Aware Graph-Based Analysis for Detecting Anomalous Activities**, *IEEE International Conference on Multimedia and Expo (ICME)*, 2017.

15. Weixiang Hong, Junsong Yuan and Sreyasee D.B., **Fried Binary Embedding for High Dimensional Visual Features**, *IEEE Conference on Computer Vision and Pattern Recognition(CVPR)*, 2017.

16. Tan Yu, Yuwei Wu, Sreyasee D.B. and Junsong Yuan, **Effiient Object Instance Search Using Fuzzy Object Matching**, *AAAI Conference in Artificial Intelligence*, 2017.

17. Sreyasee D.B, Ashit Talukder, Ehab-E-Alshaer, Pratik Doshi, **Prioritized Active Learning for Malicious URL Detection using Weighted Feature Updates**, *IEEE International Conference in Intelligence and Security Informatics (ISI)*, 2017.

18. Sreyasee D.B, Ashit Talukder, **Graph clustering for Weapon Discharge Event detection and Tracking in Infrared Imagery using Deep Features**, (**Invited Paper**) *SPIE Conference in Pattern Recognition and Tracking*, 2017.

19. Sreyasee D.B, Junsong Yuan, Weixiang Hong, Xiang Ruan, **Query adaptive instance search using sketches**, *ACM Int. conference on MultiMedia*, 2016.

20. Sreyasee D.B., Junsong Yuan, Lingyu Duan, Yap-Peng Tan , **Query Adaptive Small Object Search using Shape aware descripotors**, **IEEE Tran. MultiMedia**, Volume 18 (4), 2016, Pages 726-737.

21. Sreyasee D.B., Junsong Yuan, Lingyu Duan, Yap-Peng Tan, **Query Adaptive Logo Search using Shape aware descripotors**, *ACM Int. conference on MultiMedia*, 2015.

(f) Synergistic Activities

1. **Journal and Conference services:** (i) Technical Program Committee, Thirty Fifth AAAI Conference on Arificial Intelligence, 2021 (ii) Reviewer Committee, ICAIS 2021, Track: 27-Evolutionary Computation for Machine Learning and Data Mining (iii) Reviewer Board Member, Sensors (2020-) (iv) Reviewer in several international peer Reviewed journals including IEEE Trans. on Circuits and Systems for Video Technology, IEEE Trans. on Image Processing (T-IP), ACM Trans. on Multimedia Computing Communications and Applications (TOMM), IEEE Trans. on Multimedia (TMM), Computer Vision and Image Understanding (CVIU), EURASIP Journal on Applied Signal Processing (JASP) (v) Tech. Program Committee Member, 2nd International Workshop on Big Data Analytic for Cybercrime Investigation and Prevention, co-located with IEEE Big Data conference that will take place in Seattle, USA on 10-13 December, 2018 (vi) Tech. Program Committee Member, Multi-Sensor for Action and Gesture Recognition (MAGR), ACPR 2019 Workshop, Auckland, New Zealand (vii) Tech. Program Committee Member, The 1st International Workshop on Human-oriented Intelligent Defence Against Malware Threats (HIDAMT), 28th International Joint Conference on Artificial Intelligence (IJCAI) 2019

2. **Department service:** Member of Diversity committee for the Department of Computer Science & Engineering, 2019, 2020, and member for the Lecturer Search Committee, 2020-2021.
3. **Mentoring:** (i) *Supervised Research* (CSE799) for MS students (ii) *Independent Study* (CSE499) for Undergraduate students (iii) *Summer Internship 2021:* Balaji Arumugam (MS, UB), Sai Eshwar Myneni (MS, UB), Junqi Wu (UG, UB), Nidhish Sawant (B.Tech. CSE, IIT Goa, India)
4. **Other Professional Development Activities:**
   (i) *Completed New Faculty Academy Fellowship Programs for Teaching and Scholarly Writing*, Spring 2021 (`http://www.buffalo.edu/provost/admin-units/faculty-affairs/Events/NewFacultyAcademy.html`)
   (ii) *Attended 4-Series of Building Gender Equity in the Academy*, Spring 2021 (`https://seachangeinstitute.aaas.org/`)

(g) Collaborators in Projects/Proposals/Research

The State University of New York at Buffalo: Junsong Yuan (CSE); Jingjing Meng (CSE); Shambhu J Upadhyaya (CSE); Jeffrey Errington (CHEM); Varun Chandola (CSE); Christopher Proctor (GSE); Yunjeong Wang (GSE); Nadine Shaanta Murshid (School of Social Work); Judith Olin (School of Law); Guyora Binder (School of Law); *SUNY Buffalo State College*: Sarbani Banerjee; Neal M. Mazur; Gang Hu; Guanqiu Qi; *University of North Carolina at Charlotte*: William J. Tolone ; Isaac Cho; Ashit Talukder; Ehab Al-Shaer; *California Institute of Technology*: Ashish Mahabal; George Djorgovski; *University of California at San Francisco*: Urmimala Sarkar; *Nanyang Technological University*: Tan Yap Peng; *Baidu Research USA*: Tan Yu;

(h) Proposals Under Review/Preparation:

Modeling and Disseminating Contextualized Behavioral Knowledge in Organizations **Knowledge Management at Scale and Speed (KMASS) BAA, DARPA**, Jason Radford (NorthEastern University), Junsong Yuan, and Sreyasee Das Bhattacharjee; UB's part $\$531,250$

Augmented Intelligence for Learning and Teaching Assistant via Relational Graph Temporal Attention Network **IIS - Cyberlearn Future Learn Tech, NSF**, Sreyasee Das Bhattacharjee, Yunjeong Chang, Christopher Proctor, Shambhu J Upadhyaya, Junsong Yuan, Jeffrey Errington $\$848,836$ (Being Revised to be submitted in Oct21)

Accelerated Discovery of Transient Events for Multi-Messenger Astrophysics via Explainable Federated Learning **Cyberinfrastructure for Emerging Science and Engineering Research (CESER), NSF**, William J. Tolone (UNC Charlotte), Ashish Mahabal (CalTech), Sreyasee Das Bhattacharjee, Issac Cho (UTah) (Under Preparation)