

# Yasas Senarath Wijesuriya

PhD Candidate

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Fairfax, VA

## Research Interests

Neuro-symbolic AI, Knowledge-guided Continual Learning, Human-Centered AI, Streaming Data Analytics

## Education

**George Mason University**  
Fairfax, VA

School of Computing May 2026

PhD in Information Technology

Thesis: *Modeling Evolving Human Behavior in Online Data Streams via Knowledge-Guided Continual Learning*

Advisor: Dr. Hemant Purohit

**George Mason University**  
Fairfax, VA

School of Computing

Aug 2022

Master of Science (Applied Information Technology)

Concentration: Cyber-Human Systems (CBHS)

Advisor: Dr. Hemant Purohit

**University of Moratuwa**  
Sri Lanka

Department of Computer Science and Engineering

Jun 2019

Master of Science (Research-based)

Thesis: *Affect Level Opinion Mining of Twitter Streams*

Advisor: Dr. Uthayasanker Thayasivam

**University of Moratuwa**  
Sri Lanka

Department of Computer Science and Engineering

Jan 2018

Bachelor of Science in Engineering (Honours)

GPA: 3.95/4.20

Advisor: Dr. Surangika Ranathunga

## Research Experience

Humanitarian Informatics Lab  
George Mason University  
Aug 2019 – Aug 2025

Designed methods and tools for real-time analytics of human behavior from social media data related to natural hazards and societal crises to inform decision support systems in government agencies.

Center for Climate Change Communication  
George Mason University  
Jun 2021 – Aug 2021

Analyzed the effectiveness of educational events related to Climate Change Communication by modeling the divergence in the communication behavior of participants using their social media content posted over time.

DataSEARCH  
University of Moratuwa  
Jan 2018 – Jul 2019

Researched methods for fine-grained emotion detection in Tweets using transfer learning.

## Professional Experience

Graduate Teaching Assistant  
Information Sciences and Technology  
George Mason University, US  
Aug 2025 – Present

Graduate teaching assistant for classes Database Fundamentals, Data Analytics in Social Media, and Introduction to Research in Applied IT

Visiting Instructor  
Computer Science and Engineering  
University of Moratuwa, LK  
Jan 2018 – Jul 2019

Visiting instructor for subjects in Data Science, Advanced Algorithms, and Data Structures

Trainee Software Engineer  
CodeGen International (PVT) Ltd.  
Jul 2016 – Dec 2016

Opinion and Entity Extraction from reviews related to tourist attractions

## Peer-Reviewed Publications

### *Continual Learning*

- [1] **Senarath, Yasas** and Hemant Purohit. “KGCL: Knowledge-guided Continual Learning for Detecting Evolving Human Behaviors in Online Communities”. In: *Information Processing & Management* (2026). Under Review.
- [2] **Senarath, Yasas** and Hemant Purohit. “Evaluating Class-Incremental Learning Methods for Robust Subjective Text Analytics Systems”. In: *Neural Computing and Applications* (2025). Under Review.
- [3] **Senarath, Yasas** and Hemant Purohit. “Knowledge-guided Continual Learning for Behavioral Analytics Systems”. In: *The 7th IEEE International Conference on Cognitive Machine Intelligence (CogMI)*. 2025.
- [4] **Senarath, Yasas** and Hemant Purohit. “Lifelong Learning Framework for Multilingual Hate Speech Detection in Social Media Streams”. In: *Proceedings of the 17th International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS)*. 2024.

### *Emergency Incident Detection*

- [5] **Senarath, Yasas**, Ayan Mukhopadhyay, Hemant Purohit, and Abhishek Dubey. “Designing a Human-Centered AI Tool for Proactive Incident Detection Using Crowdsourced Data Sources to Support Emergency Response”. In: *Digital Government: Research and Practice* 5.1 (2024), pp. 1–19.
- [6] **Senarath, Yasas** et al. “Practitioner-Centric Approach for Early Incident Detection Using Crowdsourced Data for Emergency Services”. In: *2021 IEEE International Conference on Data Mining (ICDM)*. IEEE. 2021, pp. 1318–1323.
- [7] **Senarath, Yasas**, Saideep Nannapaneni, Hemant Purohit, and Abhishek Dubey. “Emergency Incident Detection from Crowdsourced Waze Data Using Bayesian Information Fusion”. In: *2020 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT)*. IEEE. 2020, pp. 187–194.

### *Streaming Data Modeling*

- [8] **Senarath, Yasas**, Amanda Borth, Edward Maibach, and Hemant Purohit. “EVO-LYZER: Social Media Mining System for Evolving Communication Behavior Analytics to Aid Climate Change Programs”. In: *Workshop: NOCAPS 2024 - Networks and Opinions on Climate Action in the Public Sphere (NOCAPS)*. 2024.
- [9] **Senarath, Yasas**, Hemant Purohit, and Rajendra Akerkar. “Violence-Inducing Behavior Prevention in Social-Cyber Space”. In: *International Symposium on AI, Data and Digitalization*. Springer Nature Switzerland Cham. 2023, pp. 151–159.
- [10] **Senarath, Yasas**, Antonios Anastasopoulos, Tonya Thornton, and Hemant Purohit. “PROBER: A System for Real-time Propaganda Behavior Analytics on Social Media and Web Data Streams”. In: *2022 IEEE International Conference on Big Data (Big Data)*. IEEE. 2022, pp. 4812–4815.
- [11] **Senarath, Yasas**, Jennifer Chan, Hemant Purohit, and Ozlem Uzuner. “Evaluating the Relevance of UMLS Knowledge Base for Public Health Informatics during Disasters”. In: *ISCRAM 2021 Conference Proceedings — 18th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*. 2021.

- [12] **Senarath, Yasas** and Hemant Purohit. “Evaluating Semantic Feature Representations to Efficiently Detect Hate Intent on Social Media”. In: *2020 IEEE 14th International Conference on Semantic Computing (ICSC)*. IEEE. 2020, pp. 199–202.
- [13] Hossein Salemi, **Senarath, Yasas**, and Hemant Purohit. “A Comparative Study of Pre-trained Language Models to Filter Informative Code-mixed Data on Social Media during Disasters”. In: *ISCRAM 2023 Conference Proceedings — 20th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*. 2023.
- [14] Hossein Salemi, **Senarath, Yasas**, Tarin Sultana Sharika, Anuridhi Gupta, and Hemant Purohit. “Summarizing Social Media & News Streams for Crisis-related Events by Integrated Content-Graph Analysis: TREC-2023 CrisisFACTS Track”. In: *The Thirty-Second Text REtrieval Conference Proceedings (TREC)*. 2023, pp. 14–17.
- [15] Fedor Vitiugin, **Senarath, Yasas**, and Hemant Purohit. “Efficient Detection of Multilingual Hate Speech by Using Interactive Attention Network with Minimal Human Feedback”. In: *Proceedings of the 13th ACM Web Science Conference (WebSci)*. 2021, pp. 130–138.

### **Human-AI Collaboration**

- [16] **Senarath, Yasas**, Rahul Pandey, Steve Peterson, and Hemant Purohit. “Citizen-Helper System for Human-Centered AI Use in Disaster Management”. In: *International Handbook of Disaster Research*. Springer Nature Singapore Singapore, 2023, pp. 477–497.
- [17] Zinat Ara et al. “Closing the Knowledge Gap in Designing Data Annotation Interfaces for AI-Powered Disaster Management Analytic Systems”. In: *Proceedings of the 29th International Conference on Intelligent User Interfaces*. 2024, pp. 405–418.
- [18] A Hughes et al. “Human-AI Teaming for COVID-19 Response: A Practice & Research Collaboration Case Study”. In: *ISCRAM 2022 Conference Proceedings — 19th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*. 2022.
- [19] Keri Stephens et al. “Online-Computer-Mediated Interviews and Observations: Overcoming Challenges and Establishing Best Practices in a Human-Ai Teaming Context”. In: *Proceedings of the 54th Hawaii International Conference on System Sciences (HICSS)*. 2021.

### **Opinion Mining**

- [20] **Senarath, Yasas**, Nadheesh Jihan, and Surangika Ranathunga. “A Hybrid Approach for Aspect Extraction from Customer Reviews”. In: *The International Journal on Advances in ICT for Emerging Regions (ICTer)* 12.1 (2019).
- [21] **Senarath, Yasas** and Uthayasanker Thayasivam. “DataSEARCH at IEST 2018: Multiple Word Embedding Based Models for Implicit Emotion Classification of Tweets with Deep Learning”. In: *Proceedings of the 9th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA)*. 2018, pp. 211–216.
- [22] Rajenthiran Jenarathanan, **Senarath, Yasas**, and Uthayasanker Thayasivam. “ACTSEA: Annotated Corpus for Tamil & Sinhala Emotion Analysis”. In: *2019 Moratuwa Engineering Research Conference (MERCon)*. IEEE. 2019, pp. 49–53.
- [23] Nadheesh Jihan, **Senarath, Yasas**, and Surangika Ranathunga. “Aspect Extraction from Customer Reviews Using Convolutional Neural Networks”. In: *2018 18th International Conference on Advances in Ict for Emerging Regions (ICTer)*. IEEE. 2018, pp. 215–220.
- [24] Nadheesh Jihan, **Senarath, Yasas**, Dulanjaya Tennekoon, Mithila Wickramarathne, and Surangika Ranathunga. “Multi-domain Aspect Extraction using Support Vector Machines”. In: *Proceedings of the 29th Conference on Computational Linguistics and Speech Processing (ROCLING)*. 2017, pp. 308–322.

### **Community Resilience**

- [25] **Senarath, Yasas**, Steve Peterson, Hemant Purohit, Amanda L Hughes, and Keri K Stephens. “Mining Risk Behaviors from Social Media for Pandemic Crisis Preparedness and Response”. In: *Proceedings of the 2021 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS)*. 2021.
- [26] Dante Della Vella et al. “Eliciting Socio-Technical Research Needs on Countering Violence-Inducing and Hateful Speech in Cyberspace”. In: *Digital Society* 4.2 (2025), p. 62.

- [27] Hoang Long Nguyen, **Senarath, Yasas**, Hemant Purohit, and Rajendra Akerkar. "Towards a Design of Resilience Data Repository for Community Resilience." In: *ISCRAM 2021 Conference Proceedings — 18th International Conference on Information Systems for Crisis Response and Management (ISCRAM)*. 2021, pp. 271–281.

## Hosted Tutorials

**Continual Learning for Online Behavioral Analytics: A Tutorial** Los Angeles, CA, USA  
International AAAI Conference on Web and Social Media (ICWSM), Tutorial (Accepted) 2026

## Teaching

**Database Fundamentals** (Teaching Assistant) Fall 2025, Spring 2026  
Conducted hands-on sessions, conducted office hours, evaluated student assignments

**Introduction to Research in Applied IT** (Teaching Assistant) Spring 2026  
Conducted office hours, evaluated student assignments

**Data Analytics in Social Media** (Teaching Assistant) Fall 2025  
Developed and conducted hands-on sessions, conducted office hours, evaluated student assignments

## Selected Talks

**Human-centered AI Use in Disaster Management using Crowdsourced Data** Castelo Branco, Portugal  
4th Workshop on Social Networks and Artificial Intelligence for Disaster Risk Management 2025

**Infrastructure Risk Forecasting using Citizen Sensing & Physical Sensing Data Streams for AI-empowered Disaster Response** Frascati, Italy (Hybrid) 2025  
The International Telecommunication Union (ITU)

**Early Warning System for Transport Risk Detection** Fairfax, VA, USA 2025  
Institute for a Sustainable Earth (ISE) Summer Grad Fellows Professional Development Series  
George Mason University

**Detecting Evolving Violence-Inducing Behaviors in the Social-Cyber Space through Continual Learning** Fairfax, VA, USA 2025  
Information Sciences and Technology (IST) PhD Symposium  
George Mason University

**Violence-inducing Behaviour Prevention in Social-Cyber Space** Sogndal, Norway 2023  
International Symposium on AI, Data and Digitalization (SAIDD)

## Mentorship

Gayatri Ramchandra Vaidya (Ph.D. Student) 2026

Anuridhi Gupta (Ph.D. Student) 2025

Rajenthiran Jenarathanan (Undergraduate Student) 2019

## Funding Proposal Development

**Provost Doctoral Research Scholarship** 2024-25  
Awarded by George Mason University  
Conceptualizing and developing the research proposal

**SCC-IRG: Resilient Sheltering Decision Support for Emergency Evacuations using Explainable AI** 2025  
Funded by the National Science Foundation (NSF)  
Developing technical approach and assisting in its description

**Violence-Inducing Behaviour Prevention in Social-Cyber Space of Local Communities (SOCYTI)** 2023-24  
Funded by the Research Council of Norway (RCN)  
Developing technical approach and assisting in its description

## Systems Development

<b>CitizenHelper</b>	[16]
A system for human-centered AI use in disaster management	
<b>CitizenHelper-CERT</b>	[18, 25]
A Human-AI teaming system that harnessed volunteer feedback loops to continuously improve COVID-19 risk detection from real-time data streams	
<b>CROMEx</b>	[7, 6, 5]
An a practitioner-first visualization dashboard that puts human judgment at the center of AI model selection for real-world emergency deployment	
<b>SOCYTI</b>	[9, 26]
A browser-based dashboard for analyzing and visualizing real-time user-generated data for understanding public discourse relating to deviant behavior	
<b>CrisisFACTS</b>	[14]
A system for summarizing social media and news streams for crisis-related events by integrated content-graph	

## Service - Reviewer

AAAI Conference on AI Ethics and Society (AIES)	2023–2025
International Conference on Advances in Social Networks Analysis and Mining (ASONAM)	2020–2022
ACM International Conference on Information and Knowledge Management (CIKM)	2022
ACM Conference on Computer Supported Cooperative Work (CSCW)	2024
International AAAI Conference on Web and Social Media (ICWSM)	2021,2023–2026
ACM Conference on Human-AI Complementarity and Alignment (HCOMP)	2022–2023
ACM Web Conference (WWW)	2021–2023,2026
IEEE Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (IEEE TPS)	2024
ACM Web Science Conference (WebSci)	2020,2024
International Symposium on AI, Data, and Digitalization (SAIDD)	2020,2023
International Workshop on Cyber Social Threats (CySoc)	2020,2022,2024

## Honors and Awards

<b>Doctoral Research Scholarship</b>	2024
Awarded by George Mason University for research in Knowledge-Guided Continual Learning.	
<b>Unbounded by Dell Technologies Hackathon</b>	2021
Secured 1st runner-up for CoviSave, a COVID-19 safety application, at the Dell EMC Unbounded Hackathon.	
<b>CINTEC Award</b>	2018
Recognized for the highest graded final year project at the Department of Computer Science and Engineering, University of Moratuwa.	
<b>Gold Award for Most Outstanding Digital Communication Project</b>	2018
Honored by Rotaract District 3220 Sri Lanka & Maldives for the community initiative TrainLK.	

## Skills

<b>Programming</b>	Python, JavaScript + HTML + CSS, SQL
<b>Technologies</b>	Numpy, GeoPandas, Pandas, Scikit-learn, Spacy, Gensim, NLTK, BeautifulSoup, Tableau, Bootstrap, jQuery, Git
<b>Research</b>	A/B testing, Qualitative Coding, Survey Design, Contextual Inquiry, Storyboarding, Cognitive Task Analysis