

YASAS SENARATH

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INTERESTS

Social Computing, Disaster Informatics, Data Mining, Natural Language Understanding, Explainable AI, Information Extraction

EDUCATION

School of Computing Aug. 2019 Present
George Mason University, United States CGPA: 3.95/4.0

- Ph.D. Student (Information Technology)
- Humanitarian, Semantics and Informatics Lab

Department of Computer Science and Engineering Jan. 2018 Jun. 2019
University of Moratuwa, Sri Lanka Overall GPA: 4.20/4.20

- M.Sc. - Data science research based M.Sc.

Department of Computer Science and Engineering Jan. 2014 Jan. 2018
University of Moratuwa, Sri Lanka Overall GPA: 3.95/4.20

- B.Sc. Eng. (Hons.) - Honours Degree of Bachelor of Science of Engineering
- Enlisted in Dean's List in All Semesters in the Department of Computer Science and Engineering

EXPERIENCE

Graduate Research Assistant Jun. 2021 - Aug. 2021
Center For Climate Change Communication George Mason University, US

- Analyze the effectiveness of educational events at Climate Change Communication by analyzing the participants' social media content.

Graduate Research Assistant Aug. 2019 - Jun. 2021
Humanitarian, Semantics and Informatics Lab (Human-Info-Lab) George Mason University, US

- Analyze Natural and Societal Crises in Social Media.
- Hate Speech Identification - Research Focus: Using Knowledge Bases for Designing Generalized Models.

Graduate Research Assistant Jan. 2018 - Jul. 2019
Data Science, Engineering and Analytics Research Hub (DataSEARCH) University of Moratuwa, LK

- Researched on fine grained emotion analysis of Tweets
- Designed and developed novel deep learning model for implicit emotion classification i.e. identification of emotions in text documents when the words indicating the emotion are absent
- Attained rank 8th out of 30 participants in Implicit Emotion Shared Task at WASSA-2018 while outperforming the baseline by 8%.

Visiting Instructor Jan. 2018 - Jul. 2019
Department of Computer Science and Engineering University of Moratuwa, LK

- Visiting Instructor of Subjects: Machine Learning, Data Science, Advanced Algorithms, Data Structures and Algorithms, Object Oriented Programming, Presentation Skills

- Opinion and Entity Extraction from Reviews Related to Tourist Attractions.

OPEN-SOURCE PROJECTS

SinLing¹

2019

Primary contributor of the only toolbox for Sinhalese language processing.

- Includes Tokenizer, Stemmer, POS-Tagger, Morphological Analyzers.

TextFlow²

2020

Primary contributor of annotation application for natural language processing. TextFlow is being used in CitizenHelper ³.

PUBLICATIONS

Practitioner-Centric Approach for Early Incident Detection Using Crowdsourced Data for Emergency Services

Y Senarath, A Mukhopadhyay, S M Vazirizade, H Purohit, S Nannapaneni, and A Dubey

The IEEE International Conference on Data Mining (ICDM) 2021

- Proposed approach Crowdsourced Multi-objective Event Detection (*CROME*) to quantify the relationship between the performance metrics of incident classification and the requirements of practitioners.

Mining Risk Behaviors from Social Media for Pandemic Crisis Preparedness and Response

Y Senarath, S Peterson, H Purohit, A L Hughes, K K Stephens

International Conference on Social Computing, Behavioral-Cultural Modeling Prediction and Behavior Representation in Modeling and Simulation (SBP-BRiMS) 2021

- Developed an approach to automatically infer the risk behavior from social media posts using machine learning models for COVID-19 pandemic.

Evaluating the Relevance of UMLS Knowledge Base for Public Health Informatics during Disasters

Y Senarath, J L Chan, H Purohit, Uzuner

International Conference on Information Systems for Crisis Response and Management (ISCRAM) 2021

- Study the degree to which the Unified Medical Language System (UMLS) contains relevant disaster, public health, and medical concepts for which public health information in disaster domain could be extracted from digital sources.

Towards a Design of Resilience Data Repository for Community Resilience

H L Nguyen, **Y Senarath**, H Purohit, R Akerkar

International Conference on Information Systems for Crisis Response and Management (ISCRAM) 2021

- Proposed a general architecture for a resilience data repository that enables communities to adopt a general methodology for collecting, storing, managing, and sharing resilience-based information.

¹<https://github.com/ysenarath/sinling>

²<https://github.com/ysenarath/textflow>

³<https://citizenhelper.orc.gmu.edu/>

Efficient Detection of Multilingual Hate Speech by Using Interactive Attention Network with Minimal Human Feedback

F Vitiugin, **Y Senarath**, H Purohit

ACM Web Science Conference

2021

- Proposed a Multilingual Interactive Attention Network (MLIAN) model for hate speech detection on multilingual social media text corpora.

Emergency Incident Detection from Crowdsourced Waze Data using Bayesian Information Fusion

Y Senarath, S Nannapaneni, H Purohit, A Dubey

IEEE/WIC/ACM International Joint Conference On Web Intelligence And Intelligent Agent Technology (WI-IAT)

2020

- Principled computational framework based on Bayesian theory to model the uncertainty in the reliability of crowd-generated reports and their integration across space and time to detect traffic accidents.

Evaluating Semantic Feature Representations to Efficiently Detect Hate Intent on Social Media

Y Senarath, H Purohit

IEEE International Conference on Semantic Computing (IEEE-ICSC)

2020

- Novel empirical study of diverse semantic features for hate speech classification task on social media posts.

ACTSEA: annotated corpus for Tamil & Sinhala emotion analysis

R Jenarthanan, **Y Senarath**, U Thayasivam

Moratuwa Engineering Research Conference (MERCon)

2019

- Scalable semi-automatic approach to create an emotion annotated corpus for low-resource languages.

A Hybrid Approach for Aspect Extraction from Customer Reviews

Y Senarath, N Jihan, S Ranathunga

International Journal on Advances in ICT for Emerging Regions

2019

- Novel mixture of classifiers approach for aspect extraction, combining an improved CNN with an SVM.

DataSEARCH at IEST 2018: Multiple Word Embedding based Models for Implicit Emotion Classification of Tweets with Deep Learning

Y Senarath, U Thayasivam

Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA)

2018

- Novel deep learning model for implicit emotion detection.

Aspect Extraction from Customer Reviews Using Convolutional Neural Networks

N Jihan, **Y Senarath**, S Ranathunga

International Conference of Advances in ICT for Emerging Regions (ICTer)

2018

- Designed a Multi-channel Convolutional Neural Network (CNN) for aspect category detection in Aspect Based Sentiment Analysis (ASBA).

Multi-Domain Aspect Extraction using Support Vector Machines

N Jihan, **Y Senarath**, D Tennekoon, M Wickramaratne, S Ranathunga

Conference on Computational Linguistics and Speech Processing (ROCLING)

2017

- Novel aspect extraction method based on Support Vector Machines (SVMs) and an array of new features and preprocessing.

Online-computer-mediated interviews and observations: Overcoming challenges and establishing best practices in a human-AI teaming context

K K Stephens, K Nader, A G Harris, C Montagnolo, A L Hughes, S A Jarvis, **Y Senarath**, & H Purohit

The Hawaii International Conference on System Sciences (HICSS)

2021

- A guideline in how to interact with participants when conducting fully mediated research with screen-sharing and video.

HONORS AND AWARDS

CINTEC Award

2018

- Awarded for the undergraduate with the highest grade for the Final Year Project at Department of Computer Science and Engineering , University of Moratuwa, Sri Lanka.

Gold Award for Most Outstanding Digital Communication Project

2018

- Awarded by Rotaract District 3220 Sri Lanka & Maldives at the 28th Rotaract District Assembly held on 08/07/2018 for the Community project TrainLK.

SKILLS

Technical Skills

Python, PyTorch, Keras, Scikit-learn, Pandas, Numpy, JavaScript

Soft Skills

Teamwork, Communication, Presentation