DAMITH CHAMALKE SENADEERA

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Education

Queen Mary University of London — London, UK
PhD in Computer Science — 10/2023 - Present

- Perform research on Deep Learning for Violence Detection in terms of Action Recognition.
- One publication in CVPR Workshops - 2024.
- Publication Profile - https://scholar.google.com/citations?user=ydCaHaYAAAAJ&hl=en

Queen Mary University of London — London, UK
MSc in Big Data Science with Machine Learning Systems - (Distinction) — 01/2022 - 01/2023
│ Score: **90.4** / 100

- Dissertation -Controlled Text Generation using T5 based Encoder-Decoder Soft Prompt Tuning - 9 citations

Nanyang Technological University (NTU) — Singapore
MSc in Information Systems - (Distinction) │ GPA: **4.8** / 5.0 — 08/2016 - 06/2017

- Distinction - Awarded the Wee Kim Wee Legacy Fund Graduate Scholarship for being the best performing student of the program for Semester 1.

National Institute of Technology (NIT), Silchar — Assam, India
B.Tech in Computer Science Engineering - (First Class) │ GPA: **8.49** / 10.0 — 08/2012 - 05/2016

- First Class - Awarded the Rajiv Gandhi Scholarship from the Government of India.

Experience

Royal Holloway University of London — London, UK
Research Assistant — 05/2023 - 09/2023

Researcher in AI

- Performed research in AI path planning. Implemented AI algorithms such as A* in C++ for hardware level implementation.
- Was able to show that inclusion of uncertainty in weighted edges for a connectivity graph with obstacles yielded similar running time without uncertainty in the edges of the graph for AI path planning for a smaller number of nodes.

Queen Mary University of London — London, UK
Research Assistant — 02/2023 - 04/2023

Researcher in Machine Learning / Deep Learning

- Performed research on the ability to detect fake audios produced through deep learning techniques using the latest published deep learning based classification algorithms.
- Was able to showcase that the fake audios created by SOTA commercial Text-To-Speech systems can cause the performance of the pre-trained classifiers to degrade by around 50% .

Cognius.ai Pte. Ltd. — Singapore
Artificial Intelligence Engineer — 06/2020 - 12/2021

Development of a Chatbot Platform using Artificial Intelligence

- Developed components for a framework of Conversational Artificial Intelligence to Automate Response Generation, using state-of-the-art tools of Machine Learning and Deep Learning.
- Performed research to improve the accuracies of the Machine Learning and Deep Learning algorithms used in Conversational Artificial Intelligence and participated in developing a Patent for the company, filed in Singapore.
- Lead a team of engineers in fulfilling Conversational Platform development tasks related to Machine Learning.

PrimusSoft Pte. Ltd. — Singapore
Data Scientist — 04/2019 - 06/2020

Implementation of Data Analytics for Building Management System

- Developed and Modified Exploratory Analytics Modules for Building Data Analytics System in order to provide a clear Visual Representation and a better understanding of Building Data.
- Enhanced and Modified algorithms for Fault Detection and Diagnostics to Automate the Insight Generation in the Building Data Analytics System.

Experience

Nanyang Technological University (NTU)
Singapore
09/2017 - 03/2019

Research Assistant

Researcher in Machine Learning / Deep Learning

- Performed research for use of Deep Learning using PyTorch framework in fields of Natural Language Processing and chemical space to find out the most suitable algorithms to increase prediction accuracy in each context.
- Developed Recurrent Deep Neural Networks with modifications for text data and participated in the development of Graph Deep Learning techniques for the usage in fields such as chemical space to increase prediction accuracies.

Publications

IEEE Proceedings of CVPR Workshops 2024 — https://ieeexplore.ieee.org/document/10678020

CUE-Net: Violence Detection Video Analytics with Spatial Cropping, Enhanced UniformerV2 and Modified Efficient Additive Attention

Damith Chamalke Senadeera, Xiaoyun Yang, Dimitrios Kollias, Gregory Slabaugh

CUE-Net addresses the challenges in automated violence detection by combining spatial Cropping with an enhanced version of the UniformerV2 architecture, integrating convolutional and self-attention mechanisms alongside a novel Modified Efficient Additive Attention mechanism (which reduces the quadratic time complexity of self-attention) to effectively and efficiently identify violent activities.

arXiv e-Print archive — https://arxiv.org/abs/2212.02924

Controlled Text Generation using T5 based Encoder-Decoder Soft Prompt Tuning and Analysis of the Utility of Generated Text in AI

Damith Chamalke Senadeera, Julia Ive

Investigated and developed a deep learning system to generate synthetic text data using controllable text generation models with the help of prompt tuning given a particular sentiment and analyzed the utility of produced artificial data in AI tasks such as model training.

Procedia Computer Science - Journal - Elsevier — https://doi.org/10.1016/j.procs.2018.10.509

Demographic Analysis of Users Based on Tweets for Psychology Related Journal Articles

Sajeev Udayakumar, Damith Chamalke Senadeera, Selvaraj Yamunarani, Na Jin Cheon

Using psychology research journal articles, related tweets and user details, developed Machine Learning models to automatically predict the Twitter user demographics as a novel approach and published a research paper.

AWARDS

Rajiv Gandhi Undergraduate Scholarship, India - 2012	Wee Kim Wee Legacy Fund Graduate Scholarship, Singapore - 2016	EPSRC DTP Studentship - 2023
Awarded by the Government of India to study Computer Science for undergraduate studies based on GCE Advanced Level (A/L) merit.	Awarded by NTU, Singapore for being the best performing student of the MSc in Information Systems program for Semester 1.	Awarded this full studentship to fund the PhD studies in Computer Science at Queen Mary University of London through UKRI-EPSRC.

SKILLS / INTERESTS

Programming Languages / Packages:

Python · Java · R · SQL · Pytorch · TensorFlow · Keras · Hadoop · Docker · Scikit-learn · Google Cloud Platform · AWS · Azure · Pandas · NumPy · Spark · Hugging Face · spaCy · MongoDB · Jira · Git

Technologies:

Data Science · Data Mining · Machine Learning · Deep Learning · Data Analytics · Computer Vision · Action Recognition · Artificial Intelligence · Natural Language Processing · Natural Language Generation · Big Data · Cloud Computing

Languages: English - Professional Proficiency (IELTS – 8/9) · Sinhala - Native Proficiency

Interests: Reading · Travelling · Museums · Movies

PROFESSIONAL MEMBERSHIPS

British Computer Society (BCS) — Professional Member - MBCS - 995096771

Institute of Engineers Sri Lanka (IESL) — Associate Member - AMIESL-AM-20883