Yasanka Sameera Horawalavithana

14605, North 43rd Street, Apt. 19, Tampa, FL 33613 US | Email: sameera1@usf.edu
Web: https://samtube405.github.io/_profile | TP: +1 (813) 409-9303

OBJECTIVE

My broad research interests are in **information diffusion, privacy and machine learning** on social network data. To this end, I have developed multiple analytical tools to understand social systems from the quantitative and/or computational perspective.

EDUCATION

University of South Florida, Tampa, FL, USA
Ph.D. Candidate, Computer Science and Engineering — GPA*: 3.96
Estimated Graduation Date: Spring, 2021
University of Colombo, School of Computing, Colombo, Sri Lanka
Bachelor of Science (Hons.), Computer Science, April 2015, (Top 1%) — GPA: 3.84
Umeå University, Sweden
Exchange Student, Computer Science, Fall 2013

PROJECTS & PUBLICATIONS

Modeling Information Diffusion Processes with Deep Learning Algorithms (SocialSim, Funding Agency: DARPA)[1], The objective of this work is to develop technologies for high-fidelity simulation of online social behavior (the spread and evolution of online information) while rigorously testing and measuring simulation accuracy in operational scenarios defined by Department of Defense, USA. We are designing novel methods to model the structure of information cascades in large scale social networks using Deep Learning techniques. *Technologies: Python, Large-scale Social Network Data Analysis (Twitter, YouTube, Reddit, GitHub, Telegram), Machine Learning algorithms,* (Jan 2018 - Present)

1. Sameera Horawalavithana, Kin Wai NG, and Adriana Iamnitchi,. Twitter is the Megaphone of Cross-Platform Messaging on the White Helmets, International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation, DC, USA, 2020
2. Sameera Horawalavithana, Abhishek Bhattacharjee, Renhao Liu, Nazim Choudhury, Lawrence O. Hall, and Adriana Iamnitchi,. Mentions of Security Vulnerabilities in Reddit, Twitter and GitHub, IEEE/WIC/ACM International Conference on Web Intelligence, Thessaloniki, Greece, October, 2019
3. Sameera Horawalavithana, A Generative/Discriminative Approach to De-construct Cascading Events, Machine Learning in Network Science, NetSci (2019)
4. Renhao Liu, Fredrick Mubang, Lawrence O. Hall, Sameera Horawalavithana, Adriana Iamnitchi and John Skvoretz, Predicting Longitudinal User Activity at Fine Time Granularity in Online Collaborative Platforms, 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC), Bari, Italy, 2019.
5. Sameera Horawalavithana,Nazim Choudhury, and Adriana Iamnitchi, Online Discussion Threads as Cascade Pools: Predicting the Growth of Discussion Threads on Reddit, Computational & Mathematical Organization Theory *(Under Submission)*.
6. Sameera Horawalavithana, Kin Wai NG, and Adriana Iamnitchi, Predicting Twitter Narrative Activity during Political Crisis using Exogenous Data, Web Conference, 2021 *(Under Submission)*.

Structural Anonymization Techniques for Large, Labeled, and Dynamic Social Graphs (Funding Agency: NSF), The objective of this work is to provide big data owners with tools to safely share their social networks data with the research community. The project aims to approach graph anonymization via two techniques for graph generation: dK-series techniques, and Exponential Random Graph Model-based approaches (ERGM). *Technologies: Python, R, Graph Generative Models, Statistical Models, Causality Analysis* (Aug 2016 - Aug 2020)

[1] http://www.cse.usf.edu/socialsim/

1. Sameera Horawalavithana, Juan Arroyo Flores, John Skvoretz, and Adriana Iamnitchi. Behind the Mask: Understanding the Structural Forces that Make Social Graphs Vulnerable to De-anonymization. IEEE Transactions on Computational Social Systems (TCSS), 2019
2. Sameera Horawalavithana, Juan Arroyo Flores, John Skvoretz, and Adriana Iamnitchi. The Risk of Node Re-identification in Labeled Social Graphs, Applied Network Science (2019)
3. Sameera Horawalavithana, Clayton Gandy, Juan Arroyo Flores, John Skvoretz, and Adriana Iamnitchi. Diversity, Topology, and the Risk of Node Re-identification in Labeled Social Graphs., The 7^{th} International Conference on Complex Networks and Their Applications. Cambridge, UK, Dec. 2018

Group Dynamics in Online Games Modeling the behavior of online players to understand how groups form, and evolve dynamically (December 2016 - August 2019)

1. Essa Alhazmi, Sameera Horawalavithana, Jeremy Blackburn, John Skvoretz and Adriana Iamnitchi. An Empirical Study on Team Formation in Online Games. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Australia, 2017
2. Essa Alhazmi, Naim Choudhury, Sameera Horawalavithana and Adriana Iamnitchi. Temporal Mobility Networks in Online Gaming. Frontiers in Big Data, 2019.

Top-k publish/subscribe model: Proposed a content-based Top-k publish/subscribe model with a novel formalization of a ranking method that uses a variation of minimum-independent dominating set problem in dynamic graphs, which is NP-hard. Randomized algorithm is proposed to rank streaming contents. *Technologies: Java, Amazon Kinesis, Amazon ElasticCache.* (March 2014 - December 2014)

1. Sameera Horawalavithana and D. N. Ranasinghe. 2015. An Efficient Incremental Indexing Mechanism for Extracting Top-k Representative Queries Over Continuous Data-streams. In Proceedings of the 14th International Workshop on Adaptive and Reflective Middleware (ARM) colocated with USENIX Middleware, Vancouver, Canada, December, 2015
2. Sameera Horawalavithana, D.N. Ranasinghe. Cloud based pub/sub model for Top-k matching over continuous data-streams [**Best Undergraduate Thesis**] January 2015, University of Colombo, School of Computing, Sri Lanka

Mining customer profiles: Developed methods to profile customers in Sysco, US restaurant platform. The model is designed to build a rich customer entity mapping multiple user-product engagements after analyzing user transaction in multiple data streams. *Technologies: Java, Spark Streaming, Kafka, Elasticsearch, Amazon Lambda, Amazon DynamoDB.* (January 2016 - July 2016)

Real-time ETL: Contributed to the development of a (near) real-time data-warehouse solution during my tenure at Sysco Labs, *Technologies: Java, Apache Storm, Hadoop Eco-system, MySQL* (February 2015 - August 2015)

EXPERIENCE

Graduate Research Assistant — University of South Florida
January 2017 - Present — Department: CSE
Currently working at Distributed System Group (DSG) under Adriana Iamnitchi.

Software Engineer — Sysco Labs (Pvt.) Ltd.
February 2015 - July 2016 — 59, Flower Rd, Colombo 07, Sri Lanka
Worked at Data and Analytic Team.

Guest Lecturer — University of Colombo
July 2015, 2016 — 35, Reid Avenue, Colombo 07, Sri Lanka
Course: Distributed System, MSc

AWARDS & HONORS

- Best-performing solution, DARPA SocialSim Challenge, January, 2020 on accurately simulating social media activities (GitHub, Reddit and Twitter) related to security vulnerabilities.
- Best Computer Science Undergraduate Thesis Award in the year 2014, University of Colombo, Sri Lanka
- Linnaeus Palme Scholarship on the International Exchange Programme administered by the International Programme Office for Education and Training and financed by Sida, Swedish International Development Co-operation Agency.
- Scholarship to attend Summer Institute, San Diego Super Computing Center (SDSC), University of California, San Diego, Summer, 2018
- Scholarship to attend 2^{nd} International summer school for Deep Learning, University of Genoa, Genoa, Italy, Summer, 2018
- ACM/SIGHPC Travel Grant for Supercomputing conference 2016, Utah
- Achieved 3rd place at Nordic Collegiate Programming Contest 2013 (Umeå region) representing Umeå university, Sweden
- Mahapola Merit Higher Education Scholarship, Government of Sri Lanka, 2010-2015

TEACHING & MENTORSHIP

Google Summer of Code (GSoC) Mentorship I served as an advisor to the open-source organization, Sustainable Computing Research Lab (SCoRe), where I mentored two GSoC students to implement a crowd sourced fact checking platform. The goal of this platform (FactBounty) is to promote the civic participation to minimize the spread of false news and rumors in Sri Lankan digital eco-system.

- Anmol Bansal, Implement a backend for a crowd-driven Fact-checking platform.
- Tuan Amith, A web interface for a crowd-driven Fact-checking platform.

Research Supervision (Undergraduate)

- Milindu Sanoj Kumarage (2015), An efficient query platform for streaming and dynamic natural graphs, University of Colombo, Sri Lanka
- Malith Senaweera, Ruwanmalee Dissanayake, Nuwini Chamindi, (2017), The Influence of Community Interactions on User Affinity in Social Networks: A Facebook Case Study, University of Colombo, Sri Lanka

Teaching Assistant

Network Science, (Graduate-level, Fall, 2018), Data Structures (Undergraduate-level, Fall, 2016), University of South Florida. Prepared and evaluated homework assignments, held weekly recitations and office hours

Student Volunteer

Volunteer on organization activities at ACM Symposium on Principles of Distributed Computing (PODC) conference, Washington, DC, Summer 2017

SERVICE (Journal / Conference Reviewing)

- IEEE Transactions on Computational Social Systems (TCSS), 2020.
- IEEE Transactions on Information Forensics & Security (TFIS), 2020
- Journal of Computational Social Science, Springer, 2020
- Transactions on Parallel and Distributed Systems (TPDS), 2018.
- Online Social Networks and Media (OSNEM), Elsevier Journal, 2018
- IEEE International Conference on Distributed Computing Systems (ICDCS), 2018

DECLARATION I hereby declare that the above written particulars are true to the best of my knowledge and belief & below referees can be contacted to get further information.

Prof. Adriana Iamnitchi, Professor (Ph.D. Advisor),
Department of Computer Science and Engineering, University of South Florida
anda@cse.usf.edu

Prof. John Skvoretz, Distinguished Professor,
Department of Sociology, University of South Florida
jskvoretz@usf.edu

Prof. Lawrence O. Hall, Distinguished Professor,
Department of Computer Science and Engineering, University of South Florida
lohall@mail.usf.edu