Sungyong Seo

CONTACT INFORMATION
Computer Science Department
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RESEARCH INTERESTS
Spatio-temporal data mining and learning, Graph-based neural networks, Physics-informed Learning, Time series forecasting

EDUCATION

Ph.D., **University of Southern California**, Los Angeles, CA   Aug. 2015 - Present
Computer Science, Advisor: Professor Yan Liu

M.S., **University of Michigan**, Ann Arbor, MI   Sept. 2012 - Dec. 2013
Electrical Engineering, Advisor: Professor Jay Guo

B.S., **Seoul National University**, Seoul, South Korea   Mar. 2005 - Feb. 2012
Electrical and Computer Engineering, Minor in Physics,
Graduated with honors

Nanyang Technological University, Singapore   Jan. 2008 - May 2008
TF-NTU LEaRN Program Visiting Student

SELECTED PUBLICATIONS

Conferences

- **Sungyong Seo***, Chuizheng Meng* and Yan Liu, Physics-aware Difference Graph Networks for Sparsely-Observed Dynamics
  International Conference on Learning Representations (ICLR) 2020

- Changwei Hu, Yifan Hu and **Sungyong Seo**, A Deep Structural Model for Analyzing Correlated Multivariate Time Series
  IEEE International Conference on Machine Learning and Applications (ICMLA) 2019

- Ashok Deb, Anuja Majmundar, **Sungyong Seo**, Akira Matsui, Rajat Tandon, Shen Yan, Jon-Patrick Allem and Emilio Ferrara, Social Bots for Online Public Health Interventions
  IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2018

- **Sungong Seo**, Arash Mohegh, George Ban-Weiss and Yan Liu, Automatically Inferring Data Quality for Spatiotemporal Forecasting
  International Conference on Learning Representations (ICLR) 2018

- **Sungong Seo**, Hau Chan, P. Jeffrey Brantingham, Jorja Leap, Phebe Vayanos, Milind Tambe and Yan Liu, Partially Generative Neural Networks for Gang Crime Classification with Partial Information
  AAAI/ACM Conference on AI, Ethics, and Society (AIES) 2018 (Oral presentation)

- **Sungyong Seo***, Natali Ruchansky* and Yan Liu, CSI: A Hybrid Deep Model For Fake News Detection
  ACM International Conference on Information and Knowledge Management (CIKM) 2017 * equally contributed

- **Sungyong Seo**, Jing Huang, Hao Yang and Yan Liu, Interpretable Convolutional Neural Networks with Dual Local and Global Attention for Review Rating Prediction
  ACM Conference on Recommender Systems (RecSys) 2017

Workshops and Preprints

- **Sungyong Seo** and Yan Liu, Differentiable Physics-informed Graph Networks
  arXiv preprint 2019

- **Sungyong Seo**, Umang Gupta, Jiageng Zhu, P. Jeffrey Brantingham and Yan Liu, Contextual Understanding of Homicide Reports in Los Angeles County
  SoCal NLP Symposium 2019

- **Sungyong Seo**, Jiachen Zhang, George Ban-Weiss and Yan Liu, Data-driven Temporal Attribution Discovery of Temperature Dynamics based on Attention Networks
  International Workshop on Climate Informatics (CI) 2019

- **Sungyong Seo** and Yan Liu, Differentiable Physics-informed Graph Networks
  ICLR Workshop on Representation Learning on Graphs and Manifolds 2019

- **Sungyong Seo**, Arash Mohegh, George Ban-Weiss, and Yan Liu, Data Quality Network for Spatiotemporal Forecasting
  NeurIPS Workshop on Deep Learning for Physical Sciences 2017

- **Sungyong Seo**, Arash Mohegh, George Ban-Weiss, and Yan Liu, Graph Convolutional Autoencoder with Recurrent Neural Networks for Spatiotemporal Forecasting
  International Workshop on Climate Informatics (CI) 2017

- **Sungyong Seo**, Jing Huang, Hao Yang, and Yan Liu, Representation Learning of Users and Items for Review Rating Prediction Using Attention-based Convolutional Neural Network
  SDM Workshop on Machine Learning for Recommender Systems 2017

WORK
EXPERIENCE

Center for Data Science (CDS) at New York University New York, NY
Visiting Researcher Jul. 2019 - Jan. 2020

- Working on graph-based networks for spatiotemporal sequence imputation with Professor Kyunghyun Cho.

Yahoo! Research New York, NY
Research Intern May 2018 - Aug. 2018

- Developed time-series forecasting and clustering models by extracting patterns in internal billing records.

Visa Research Foster City, CA
Research Intern Jun. 2016 - Aug. 2016

- Worked with Jing Huang in Data Analytics team on Visa Research. Developed recommendation systems utilizing review on products based on attention CNN.

HONORS AND
AWARDS

ICLR Travel Award	May. 2018
NIPS DLPS Workshop Travel Support	Dec. 2017
SIGIR Travel Award, US NSF and SIGWEB Travel Award (CIKM)	Nov. 2017
Travel Fellowship Award to Climate Informatics Workshop	Sep. 2017
USC Annenberg Graduate Fellowship	Aug. 2015 - May 2019
Departmental Fellowship from Electrical Engineering	Jan. 2014 - Apr. 2014
Temasek Foundatdion - NTU LEaRN Scholarship	Jan. 2008 - May 2008
National Science and Technology Scholarship	Mar. 2005 - Dec. 2010