Songgaojun (Amy) Deng

Email: sdeng4@stevens.edu
Github: amy-deng

Education

- **Stevens Institute of Technology** — Hoboken, NJ
  Ph.D. Candidate in Computer Science; GPA: 4.0/4.0 — *Aug 2018 - May 2022*
  Courses: *Deep Learning, Machine Learning, Intro Text Mining/Nat. Lang Proc, Adv. Algorithm Dsgn & Implement, etc.*
- **Beijing Institute of Technology** — Beijing, China
  Master of Science in Computer Science; GPA: 4.0/4.0 — *Sep 2016 - May 2018*
  Thesis: *Evolutionary Neural Network Algorithm Based on Triplet Nucleotide Coding*
- **China University of Mining and Technology** — Xuzhou, China
  Bachelor of Science in Computer Science; GPA: 3.7/4.0 — *Sep 2012 - May 2016*

Experience

- **Yahoo Research - Targeting Science Team** — Remote
  Research Engineer Intern — *June 2020 - Aug. 2020*
  - Developed novel unsupervised clustering methods for cookieless ads targeting by studying the correlations between users' behaviors and appearances of their identities.
- **Institute of Electronics, Chinese Academy of Sciences** — Suzhou, China
  Research & Development Intern — *July 2015 - Mar 2016*
  - Participated in distributed system testing, operation, and maintenance work and implemented data visualization for social network mining.

Projects

- **Causality Enhanced Societal Event Forecasting With Heterogeneous Graph Learning**: (Preprint *2022*) Introduced a method to discover topics that have a causal effect on future events and proposed a causality-enhanced heterogeneous graph learning framework where topics, documents, and words are represented as nodes.
- **Understanding Event Predictions via Contextualized Multilevel Feature Learning**: (Preprint *2021*) Proposed a contextualized multilevel feature learning framework, for interpretable temporal event prediction.
- **Dynamic Knowledge Graph based Multi-Event Forecasting**: (*2020*) Proposed a temporal graph learning method with heterogeneous data fusion for predicting concurrent events of multiple types and inferring multiple candidate actors simultaneously.
- **Forecasting Long-term Spatio-Temporal Epidemic Outbreaks**: (*2020*) Studied a cross-location attention based graph neural network for learning multivariate time series embeddings and location aware attentions, which achieves the state-of-the-art prediction performance in long lead time settings (e.g. 15 weeks).
- **Learning Dynamic Context Graphs for Predicting Social Events**: (*2018*) Presented a novel graph convolutional network for predicting future events. Designed a temporal encoding module to capture temporal dependencies and event context graphs.

Selected Publications

- **Deng, S.**, Rangwala, H. and Ning, Y., 2021, November. "Understanding Event Predictions via Contextualized Multilevel Feature Learning ". In CIKM'21.
- **Deng, S.**, Wang, S., Rangwala, H., Wang, L. and Ning, Y., 2020, October. "Cola-GNN: Cross-location Attention based Graph Neural Networks for Long-term ILI Prediction". In CIKM'20.
- **Deng, S.**, Rangwala, H. and Ning, Y., 2020, August. "Dynamic Knowledge Graph based Multi-Event Forecasting". In KDD'20
- **Deng, S.**, Rangwala, H. and Ning, Y., 2019, July. "Learning Dynamic Context Graphs for Predicting Social Events". In KDD'19.

External Services

- **Program Committee Member**: AAAI(2022), CIKM(2022)
- **Reviewer/Student Reviewer**: WWW, IEEE BigData, ICML, NeurIPS, ICLR, AAAI, IJCAI, KDD, SDM, PAKDD, WiML, ASONAM, PeerJ

Skills Summary

- **Languages**: Python, SQL, C++, PHP, JavaScript, Scala
- **Frameworks and tools**: PyTorch, Keras, DGL, Scikit-Learn, NLTK, Numpy, Pandas

Additional Experience & Achievements

- 2022 Recipient of the Excellence in Graduate Research at Stevens.
- Received Stevens Excellence Doctoral Fellowship (2021-2022).
- Speaker of the tutorial *Explainable AI for Societal Event Predictions: Foundations, Methods, and Applications* at AAAI'21.
- Departmental nomination for Microsoft PhD Fellowship 2021.
- Received KDD 2019 and 2020 student travel award.
- Received Women in Machine Learning (WiML @ NeurIPS 2019) travel grant.
- Received travel grant to attend CRA Women in Computing Workshop 2019.