

The First International Workshop on Deep Learning on Graphs: Methods and Applications (DLG'19)

August 5, 2019
Anchorage, Alaska, USA

In Conjunction with the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining

August 4-8, 2019

Dena'ina Convention Center and William Egan Convention Center
Anchorage, Alaska, USA



Call for Papers

Deep Learning models are at the core of research in Artificial Intelligence research today. It is well-known that deep learning techniques that were disruptive for Euclidean data such as images or sequence data such as text are not immediately applicable to graph-structured data. This gap has driven a tide in research for deep learning on graphs on various tasks such as graph representation learning, graph generation, and graph classification. New neural network architectures on graph-structured data have achieved remarkable performance in these tasks when applied to domains such as social networks, bioinformatics and medical informatics.

This wave of research at the intersection of graph theory and deep learning has also influenced other fields of science, including computer vision, natural language processing, inductive logic programming, program synthesis and analysis, automated planning, reinforcement learning, and financial security. Despite these successes, graph neural networks (GNNs) still face many challenges namely,

- Modeling highly structured data with time-evolving, multi-relational, and multi-modal nature. Such challenges are profound in applications in social attributed networks, natural language processing, inductive logic programming, and program synthesis and analysis. Joint modeling of text or image content with underlying network structure is a critical topic for these domains.
- Modeling complex data that involves mapping between graph-based inputs and other highly structured output data such as sequences, trees, and relational data with missing values. Natural Language Generation tasks such as SQL-to-Text and Text-to-AMR are emblematic of such challenge.

This workshop aims to bring together both academic researchers and industrial practitioners from different backgrounds and perspectives to above challenges. The workshop will consist of contributed talks, contributed posters, and invited talks on a wide variety of the methods and applications. Work-in-progress papers, demos, and visionary papers are also welcome. This workshop intends to share visions of investigating new approaches and methods at the intersection of Graph Neural Networks and real-world applications.

Topic of interest (including but not limited to)

We invite submission of papers describing innovative research and applications around the following topics. Papers that introduce new theoretical concepts or methods, help to develop a better understanding of new emerging concepts through extensive experiments, or demonstrate a novel application of these methods to a domain are encouraged.

- Graph neural networks on node-level, graph-level embedding
- Graph neural networks on graph matching
- Dynamic/incremental graph-embedding
- Learning representation on heterogeneous networks, knowledge graphs
- Deep generative models for graph generation/semantic-preserving transformation
- Graph2seq, graph2tree, and graph2graph models
- Deep reinforcement learning on graphs
- Adversarial machine learning on graphs

And with particular focuses but not limited to these application domains:

- Learning and reasoning (machine reasoning, inductive logic programming, theory proving)

- Natural language processing (information extraction, semantic parsing (AMR, SQL), text generation, machine comprehension)
- Bioinformatics (drug discovery, protein generation)
- Program synthesis and analysis
- Automated planning
- Reinforcement learning (multi-agent learning, compositional imitation learning)
- Financial security (anti-money laundering)
- Computer vision (object relation, graph-based 3D representations like mesh)

Awards

Best Paper Award: The program committee will nominate a paper for the Best Paper award. The Best Paper award will include a cash prize. Stay tuned for this year!

Important Dates

- Paper submission: May 5, 2019 (Anywhere on Earth)
- Author notification: June 1, 2019
- Camera-Ready: Jun 10, 2019
- Workshop: August 5, 2019

Paper Guidelines

Submissions are limited to a total of 4 (four) pages, excluding references or supplementary materials, and authors should only rely on the supplementary material to include minor details that do not fit in the 4 pages. All submissions must be in PDF format and formatted according to the new Standard ACM Conference Proceedings Template. Following this KDD conference submission policy, reviews are double-blind, and author names and affiliations should NOT be listed. Submitted papers will be assessed based on their novelty, technical quality, potential impact, and clarity of writing. For papers that rely heavily on empirical evaluations, the experimental methods and results should be clear, well executed, and repeatable. Authors are strongly encouraged to make data and code publicly available whenever possible. The accepted papers will be posted on the workshop website and will not appear in the KDD proceedings. Special issues in flagship academic journals are under consideration to host the extended versions of best/selected papers in the workshop.

All submissions must be uploaded electronically at <https://easychair.org/conferences/?conf=dlg2019>

Contact information: DLG.helpinfo@gmail.com.

Keynote Speakers

- Michael Bronstein, Imperial College London, UK
- Jure Leskovec, Stanford University, USA
- Peter Battaglia, DeepMind, UK
- Peng Cui, Tsinghua University, China

Workshop Co-Chairs

- Jian Pei (Simon Fraser University, Canada)
- Lingfei Wu (IBM Research AI, USA)
- Yinglong Xia (Huawei Research America, USA)
- Hongxia Yang (Alibaba Group, China)

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- Liang Zhao, George Mason University, USA
- Dawei Zhou, Arizona State University, USA
- Zhen Zhang, Washington University in St. Louis, USA
- Chang Zhou, Alibaba Group, China