Shichang Zhang

CONTACT INFORMATION

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EDUCATION

University of California, Los Angeles — Los Angeles, CA
Ph.D. in Computer Science (Advisor: Yizhou Sun) — Sept. 2019 - Present

Stanford University — Stanford, CA
M.S. in Statistics, GPA: 3.95 — Sept. 2017 - Apr. 2019

University of California, Berkeley — Berkeley, CA
B.A. in Statistics, GPA: 3.92 — Aug. 2015 - May 2017
Honors: Honors in Statistics, High Distinction

PROFESSIONAL EXPERIENCE

Research Intern — June 2021 - Spet. 2021
Snap Inc, Snap Research Team — Los Angeles, CA

- Cross-model distillation from GNNs to MLPs to speed up model inference by 179 times and facilitate model deployment on latencey-constraint applications.
- Condense the training graph to a synthetic graph by over 90% reduction rate while maintaining competitive model performance for GNNs trained from scratch.

Data Scientist Intern — June 2019 - Spet. 2019
WeWork, Research and Applied Science Team — Palo Alto, CA

- Implemented a data processing pipeline in SQL and Python for data querying, data cleaning, and feature engineering.
- Trained a Gradient Boosted Tree model on two million customer data to predict occupancy rate for WeWork buildings and achieved 0.093 MAE on the test set.
- Presented the pricing project as a selected outstanding project to the Research and Applied Science team including the VP.

RESEARCH INTERESTS

Representation learning, graph neural networks (GNNs), self-supervised learning, generative models, Bayesian deep learning

PUBLICATIONS

Shichang Zhang, Yozen Liu, Yizhou Sun, Neil Shah. " Graph-less Neural Networks, Teach Old MLPs New Tricks via Distillation" (preprint)

Wei Jin, Lingxiao Zhao, **Shichang Zhang**, Yozen Liu, Jiliang Tang, Neil Shah. " Graph Condensation for Graph Neural Networks" (preprint)

Shichang Zhang, Ziniu Hu, Arjun Subramonian, Yizhou Sun. "Motif-driven Contrastive Learning of Graph Representations" (SSL@WWW2021 pdf)

Yewen Wang, **Shichang Zhang**, Ziniu Hu, Yusong Ye, Junghoo Cho, Yizhou Sun. "Adaptive Graph Neural Networks via Fisher Regularization-Guided Filter Integration" (preprint)

Shichang Zhang, Yancheng Li, Yiyang Li. "Machine Reading Comprehension with Hierarchical Attention and Stochastic Prediction Dropout" (preprint)

Research Experience

Machine Learning on Graphs Sept. 2019 - Present
University of California, Los Angeles (Advisor: Yizhou Sun)

- **Motif-driven Contrastive Learning of Graph Representations**:
  - A scalable self-supervised learning framework to automatically extract motifs from large graph datasets
  - Pre-train a GNN encoder for graph level representations by contrastive learning leveraging the learned motifs
  - Fine-tune the pre-trained GNN to enhance model performance on various graph-level downstream tasks, e.g. molecule property prediction
- **Kernel-based Graph Pooling**
  - A kernel-based pooling method for graph-level representations, which generalizes the spectral-clustering-based minCut pooling method
  - Outperform state-of-the-art pooling methods (DiffPool, SAGPool, MinCutPool) on tasks including graph classification and subgraph matching
- **Graph Generation with Normalizing Flows**
  - Graph generation by computing and maximizing the exact likelihood through normalizing flows
  - Learn a multi-modal base distribution of the normalizing flow for conditional graph generation

Bootstrap Confidence Intervals (BCI) Sept. 2018 - Apr. 2019
Stanford University (Advisor: Brad Efron)

- Wrote R program to automatically construct BCI and applied BCI to evaluate influence of initial diagnosis on the survival rate of organ transplant patients

Birth-and-Assassination Random Branching Process Aug. 2016 - Dec. 2016
University of California, Berkeley (Advisor: David Aldous)

- Analyzed and simulated the stable condition of the birth-and-assassination branching random process. See here

Academic Service

Conference Reviewer: KDD 2020, ECML-PKDD 2021, NeurIPS 2021, ICDM 2021
Journal Reviewer: TKDD, TKDE

Teaching Experience

Teaching Assistant Sept. 2020 - Present
Department of Computer Science, UCLA Los Angeles, CA

- CS145: Introduction to Data Mining (Fall 2020, Fall 2021)
- CS32: Introduction to Computer Science II (Spring 2021)

Skills

Programming: Python (PyTorch, PyTorch Geometric, DGL), C, C++, R, Java, SQL
Operating system & Tools: Linux (Ubuntu), Git, Docker, Jupyter, LaTeX
Natural Language: Mandarin Chinese (Native), English (Proficient)