JUNWEI DENG

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EDUCATION

University of Michigan, United States
Master of Science in Information *2019.9 - 2021.4*

- **GPA:** 3.89/4.00
- **Coursework**: Network(A), Data Manipulation & Analysis(A), Data Mining (A), NLP (A), Machine Learning (A-), Information Visualization (A-)

Shanghai Jiao Tong University, P.R. China
Bachelor of Science in Electrical and Computer Engineering *2016.9 - 2020.8*

- **GPA:** 3.71/4.00
- **Coursework**: Data Structures and Algorithms (A+), Operating System (A), Computer Organization (A+), Computer Networks (A), Applied Regression (A), Methods and Tools for Big Data (A), Linear Algebra (A-), Probabilistic Methods (A), Discrete Mathematics (A)

SELECTED PAPERS

(*for equal contribution)

- J. Ma*, **J. Deng***, Q. Mei. *Subgroup Generalization and Fairness of Graph Neural Networks*. **NeurIPS 2021 (Spotlight, top 3%)**.
- J. Ma*, **J. Deng***, Q. Mei. *Adversarial Attack on Graph Neural Networks as An Influence Maximization Problem*. **WSDM 2022**.
- J. Dai, D. Ding, D. Shi, S. Huang, J. Wang, X. Qiu, K. Huang, G. Song, Y. Wang, Q. Gong, J. Song, S. Yu, L. Zheng, Y. Chen, **J. Deng**, G. Song. *BigDL 2.0: Seamless Scaling of AI Pipelines from Laptops to Distributed Cluster*. **CVPR 2022 (Demo Track)**.
- J. Ke, **J. Deng**, Y. Lu, D. Wang, Y. Song and H. Zhang. *Assessment and Elimination of Inflammatory Cell: A Machine Learning Approach in Digital Cytology*. **DICTA 2019 (Oral)**.

RESEARCH EXPERIENCE

University of Michigan, United States *2020.4 - 2022.2*
Advisor: Prof. Qiaozhu Mei and Prof. Jiaqi Ma

Subgroup Generalization and Fairness of Graph Neural Networks

- Discuss the generalization bound of GNN node level semi-supervised task under non-IID assumptions.
- Through PAC-Bayesian analysis, we derive a higher bound of each subgroup of nodes' margin loss.
- Designed and Implemented several experiment settings to show the accuracy disparity meets our derivation.

Adversarial Attack on Graph Neural Networks as An Influence Maximization Problem

- Study influence maximization problem and fit the attacks' spread among Graph nodes to the context.
- Set easy but reasonable assumptions on the influence's distribution to make the influence maximization problem non-NP-hard, verified the assumption empirically on several real cases.
- Design a new attacked node selection algorithm based on the solution to the mentioned influence maximization problem. The new attack algorithm outperforms other strong baselines.

Shanghai Jiao Tong University, P.R. China *2019.2 - 2019.9*
Advisor: Prof. Jing Ke
Assessment and Elimination of Inflammatory Cell: A Machine Learning Approach

- Proposed a ResNet based encoder to replace the original one in U-Net. The new model hit a better segmentation accuracy and less nested result that is more friendly to downstream jobs.
- Proposed a revised PatchMatch method for the cervical clinical image specifically that well inpainted more than 96.0% inflammatory cells.

WORK EXPERIENCE

Intel, P.R. China
AI Frameworks Engineer *2021.5-now*

- Design, project management and partially implement of inference optimization part of "*bigdl-nano*", a library helps developers accelerate their pytorch/tensorflow code transparently on Intel hardware with no/very few codes changes.
- In charge of a time series analysis application framework called "bigdl-chronos", that aims to deliver end-to-end time series analysis solution to domain experts who has only limited AI knowledge.

Awards, Scholarship, Funding

- **GSI Position (2020 Fall)**, Teaching assistant of SIADS 532 **Data Mining I** in University of Michigan with **tuition waiver** for that semester.
- **Explorer Scholarship (2020)** , for outstanding students who went aboard for their graduate study provided by Shanghai Jiao Tong University.
- **Shanghai Outstanding College Graduate (2020)** , for outstanding students graduated in Shanghai.
- **National Scholarship (2018)**, The highest award provided by Ministry of Education in P.R. China.

SKILL

- **Language**: Proficient: Python, Git, Markdown, Shell, LaTeX
- **Framework**: Pytorch, Tensorflow, CUDA, Spark
- **English**: TOEFL 107/120 (Speaking: 25)