WANG Xiasi

+(86)15156017806 • xwangfy@connect.ust.hk

Education Background

The Hong Kong University of Science and Technology

Ph.D. in Data Science and Analytics *2020.09 – 2024.06*

GPA: 3.881/4.30

Related Courses: Statistical Machine Learning, Deep Learning, Data Mining

Research interests: Machine Learning, Self-Supervised Learning

University of Science and Technology of China

Bachelor of Science in Statistics *2016.09 – 2020.06*

GPA: 3.45/4.30

Related Courses: Probability, Mathematical Statistics, Regression Analysis, Multivariate Analysis, Time Series Analysis, Real Analysis, Functional Analysis, Statistical Software, Mathematical Modeling

Research Projects

Research on Systemic Risk Contagion in Financial Networks

Department of Statistics and Finance, School of Management, USTC *2019.07 – 2020.01*

- Learn a risk contagion model for financial networks which triggers the contagion before default
- Construct a liability matrix of a Chinese bank network by assigning prior distributions to banks' connection probabilities and weights of their connections for the Gibbs Sampler
- Explore the model's sensitivity to its parameters, impose stress tests to the Chinese bank network and discover the main causes of changes of contagion losses of the past ten years
- **Publication:** Solvency Contagion Risk in the Chinese Commercial Bank Network, *Physica A*, 2021

Research on Contrastive Learning

Data Science and Analytics, Information Hub, HKUST *2021.12 – 2022.04*

- Focus on the selection criterion of negative samples in contrastive learning
- Use quantitative analysis to find that the semi-hard negatives plays an important part in contrastive learning since easy negatives provides negligible gradients and hard negatives suffer from the false negative problem
- Discover an exponential decaying relation of hardness v.s. false rate, propose a hardness-aware debiasing method based on it to mitigate the side effect of false negatives
- **Submission:** Hardness-Aware Contrastive Learning, 2022

Internship Experience

Artificial Intelligence Algorithm Research Intern

Noah's Ark Lab, Huawei Technologies Co., Ltd, Shenzhen *2022.04 – Present*

- Focus on self-supervised learning, investigate the multi-view perspective of self-supervised learning in computer vision systematically
- Develop the Multi-View Entropy Bottleneck method to obtain the minimal sufficient representation
- Validate the superiority of MVEB on ImageNet linear evaluation (state-of-the-art so far) and extensive downstream tasks including transfer learning and object detection
- **Submission:** MVEB: Self-Supervised Learning with Multi-View Entropy Bottleneck, 2022

Honors & Scholarships

- Full Postgraduate Scholarship, HKUST *2020 – 2024*
- Outstanding graduate student, USTC *2020*
- Outstanding Undergraduate Scholarship, USTC *2017, 2018, 2019*

Professional Skills

- Computer Languages & Tools: Python, R, C, MATLAB, LaTeX
- Language: GRE: 322+4.0 (Verbal 152 Quant 170)

王夏偲 | Wang Xiasi

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教育背景

香港科技大学

Ph.D. | 数据科学 Data Science *2020.09 – 2024.06*

GPA: 3.881/4.30

相关课程: 统计机器学习，深度学习，数据挖掘

研究兴趣: 机器学习，自监督学习

中国科学技术大学

B.S. | 统计学 Statistics *2016.09 – 2020.06*

GPA: 3.45/4.30

相关课程: 概率论，数理统计，回归分析，多元统计分析，时间序列分析，实分析，泛函分析，统计计算软件，数学建模

研究项目

金融网络系统性风险研究

中国科学技术大学管理学院统计与金融系 *2019.07 – 2020.01*

- 研究了一个在金融机构违约前触发风险传播机制的模型
- 通过给银行间的借贷连接概率和分布指定先验分布从而创建银行间借贷矩阵网络，并且用吉布斯取样的方法生成样本矩阵用于实证分析
- 在压力测试中研究了模型关于参数的敏感性，创建移植资产表发现造成传播风险变化的原因
- **发表作品:** Solvency Contagion Risk in the Chinese Commercial Bank Network, *Physica A*, 2021

对比学习研究

香港科技大学信息学部数据科学系 *2021.12 – 2022.04*

- 关注对比学习中负样本的选择准则
- 使用定量分析发现在对比学习中，中等难度的负样本表现情况最好，因为简单的负样本不能提供明显的梯度指导，难的负样本可能存在伪负例问题
- 发现负例的难度和伪负例率之间存在一个指数关系，基于此提出了 hardness-aware debiasing 方法来减轻负例的负面影响
- **投稿:** Hardness-Aware Contrastive Learning, 2022

实习经历

人工智能算法实习研究生

华为诺亚方舟实验室，深圳 *2022.04 – 现在*

- 关注自监督学习，系统性研究了计算机视觉领域中从多视角角度来理解自监督学习的工作
- 提出 Multi-View Entropy Bottleneck 方法来获取最小充分表征
- 在 ImageNet 的分类任务以及广泛的下游实验包括迁移学习和目标检测中验证了 MVEB 算法的优越性，其中在 ImageNet 的分类任务上达到了目前最佳（ResNet-50）
- **投稿:** MVEB: Self-Supervised Learning with Multi-View Entropy Bottleneck, 2022

获奖情况

- 博士生奖学金，香港科技大学 *2020 – 2024*
- 优秀毕业生，中国科学技术大学 *2020*
- 优秀本科生奖学金，中国科学技术大学 *2017, 2018, 2019*

专业技能

- 计算机语言和工具: Python, R, C, MATLAB, LaTeX
- 英语: GRE: 322+4.0 (Verbal 152 Quant 170)