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雄心勃勃、富有创造力、好奇心强、诚实、充满热情

分布式机器学习、高效机器学习、信号处理、人工智能

教育

- 杜克大学 | *电气工程博士* 05/2018 – 09/2023
- 哈佛大学| *工程科学硕士* 08/2016 – 05/2018
- 佐治亚理工学院 | *计算机科学学士（最高荣誉）* 08/2013 – 05/2016
- 佐治亚理工学院 | *电气工程学士（最高荣誉）* 08/2012 – 05/2016

经历

- **博士后**
  杜克大学 09/2023 – 01/2024
  - 开发了用于分布式机器学习和通用人工智能的高效协作方法
  - 受 Prof. Vahid Tarokh and Prof. Jie Ding 指导
- **研究助理**
  杜克大学 05/2018 – 09/2023
  - 研究了分布式机器学习，并开发了联邦学习和辅助学习框架
  - 研究了高效能机器学习，并开发了用于数据和模型压缩的深度学习方法
  - 受 Prof. Vahid Tarokh and Prof. Jie Ding 指导

  哈佛大学 08/2016 – 05/2018
  - 从统计效率的角度开发了机器学习极限的理论基础
  - 开发了一种高效算法，用于计算一般非线性模型的“自由度”，将交叉验证的计算量减少了几个数量级
  - 受 Prof. Vahid Tarokh and Prof. Jie Ding 指导

  佐治亚理工学院 05/2014 – 05/2016
  - 开发了用于移动应用中的单音音高转录的旋律提取算法
  - 使用Verilog在FPGA上开发了细胞神经网络
  - 受 Dr. Udit Gupta, Prof. Elliot Moore and Prof. Hyesoon Kim 指导
- **应用科学家**
  亚马逊 01/2022 – 09/2022
  - 研究了半监督和个性化联邦学习，并开发了其在Alexa设备上的应用
  - 开发了基于Pytorch的内部研究开发流程
  - 与其他科学家合作研究了联邦学习的各种方向，包括公平性、异步性、辅助信息和模型压缩
  - 受 Prof. Jie Ding and Dr. Tao Zhang 指导

- **项目管理**

  杜克 数据+ 项目 05/2019 – 08/2019
  - 领导了一个由全职本科生组成的团队，负责暑期研究项目，开发了语音情感识别和情感语音生成的算法

- **教学助理**

  杜克大学 08/2019 – 05/2020
  - 指导学生学习和实现深度学习及音频信号处理算法

  佐治亚理工学院 05/2015 – 08/2015
  - 指导学生学习FPGA、示波器，并使用VHDL构建处理器

论文

- S. Moushegian, S. Wu, **E. Diao**, J. Ding, T. Banerjee, V. Tarokh, **Robust Score-Based Quickest Change Detection**, *IEEE Transactions on Information Theory*
- Q. Le, **E. Diao**, Z. Wang, X. Wang, J. Ding, L. Yang, A. Anwar, **Probe Pruning: Accelerating LLMs through Dynamic Pruning via Model-Probing**, ICLR 2025
- X. Wang, Q. Le, A. Ahmed, **E. Diao**, Y. Zhou, N. Baracaldo, J. Ding, A. Anwar, **MAP: Multi-Human-Value Alignment Palette**, ICLR 2025
- X. Wang, **E. Diao**, Q. Le, J. Ding, A. Anwar**, AID: Adaptive Integration of Detectors for Safe AI with Language Models**, NAACL 2025
- Q. Le, **E. Diao**, X. Wang, V. Tarokh, J. Ding, A. Anwar, **DynamicFL: Federated Learning with Dynamic Communication Resource Allocation**, *IEEE BigData 2024 (Best student paper)*
- Y. Zhe, **E. Diao**, **ESC: Efficient Speech Coding with Cross-Scale Residual Vector Quantized Transformers**, *EMNLP 2024*
- Y. Zhang, **E. Diao**, D. Huston, T. Xia, **A PixelCNN Based Method for Rough Surface Clutter Reduction in GPR B-scan Images**, *IEEE Radar Conference*
- Y. Zhang, **E. Diao**, D. Huston, T. Xia, **A Data Efficient Deep Learning Method for Rough Surface Clutter Reduction in GPR Images**, *IEEE Transactions on Geoscience and Remote Sensing*
- **E. Diao**, T. Banerjee, V. Tarokh, **Large Deviation Analysis of Score-based Hypothesis Testing**, *IEEE Access*
- **E. Diao**, Q. Le, S. Wu, X. Wang, A. Anwar, J. Ding, V. Tarokh, **ColA: Collaborative Adaptation with Gradient Learning**, *arXiv*
- S. Wu, **E. Diao**, T. Banerjee, J. Ding, V. Tarokh, **Quickest Change Detection for Unnormalized Statistical Models**, *IEEE Transactions on Information Theory*
- K. Varma, **E. Diao**, T. Roosta, J. Ding, T. Zhang, **Once-for-All Federated Learning: Learning From and Deploying to Heterogeneous Clients**, *KDD 2023 Workshop*
- S. Wu, **E. Diao**, T. Banerjee, J. Ding, V. Tarokh, **Robust Quickest Change Detection for Unnormalized Models**, *UAI 2023*
- **E. Diao**, T. Eric, J. Ding, Z. Tao, **Semi-Supervised Federated Learning for Keyword Spotting**, *ICME 2023*
- **E. Diao**, G. Wang, J. Zhang, Y. Yang, J. Ding, V. Tarokh, **Pruning Deep Neural Networks from a Sparsity Perspective**, *ICLR 2023*
- S. Wu, **E. Diao**, T. Banerjee, J. Ding, V. Tarokh, **Score-based Change Point Detection for Unnormalized Models**, *AISTATS 2022*
- Q. Le, **E. Diao**, X. Wang, A. Anwar, V. Tarokh, J. Ding, **Personalized Federated Recommender Systems with Private and Partially Federated AutoEncoders**, *Asilomar 2022*
- L. Collins, **E. Diao**, T. Roosta, J. Ding, T. Zhang, **PerFedSI: A Framework for Personalized Federated Learning with Side Information**, *NeurIPS 2022 Workshop*
- **E. Diao**, J. Ding, V. Tarokh, **SemiFL: Communication Efficient Semi-Supervised Federated Learning with Unlabeled Clients**, *NeurIPS 2022*
- **E. Diao**, J. Ding, V. Tarokh, **GAL: Gradient Assisted Learning for Decentralized Multi-Organization Collaborations**, *NeurIPS 2022*
- S. Wu, **E. Diao**, K. Elkhalil, J. Ding, V. Tarokh, **Score-based Hypothesis Testing for Unnormalized Models**, *IEEE Access*

- **E. Diao**, V. Tarokh, J. Ding, **Decentralized Multi-Target Cross-Domain Recommendation for Multi-Organization Collaborations**, *arXiv*
- **E. Diao**, J. Ding, V. Tarokh, **Multimodal Controller for Generative Models**, *CVMI 2022*
- M. Mohammadreza, **E. Diao**, V. Tarokh, B. Andrew, **Emulating Spatio-Temporal Realizations of Three-Dimensional Isotropic Turbulence via Deep Sequence Learning Models**, *AAAI 2022 Workshop*
- M. Mohammadreza, **E. Diao**, V. Tarokh, B. Andrew, **Dimension Reduced Turbulent Flow Data From Deep Vector Quantizers**, *Journal of Turbulence*
- M. Mohammadreza, **E. Diao**, V. Tarokh, B. Andrew, **A Physics-Informed Vector Quantized Autoencoder for Data Compression of Turbulent Flow**, *DCC 2021*
- **E. Diao**, J. Ding, V. Tarokh, **HeteroFL: Computation and Communication Efficient Federated Learning for Heterogeneous Clients**, *ICLR 2021*
- J. Ding, **E. Diao**, V. Tarokh, **On Statistical Efficiency in Learning**, *IEEE Transactions on Information Theory*
- J. Wang, M. Xue, R. Culhane, **E. Diao**, J. Ding, V. Tarokh, **Speech Emotion Recognition with Dual-Sequence LSTM Architecture**, *ICASSP 2020*
- **E. Diao**, J. Ding, V. Tarokh, **DRASIC: Distributed Recurrent Autoencoder for Scalable Image Compression**, *DCC 2020*
- S. Wu, **E. Diao**, J. Ding, V. Tarokh, **Deep Clustering of Compressed Variational Embeddings**, *DCC 2020*
- **E. Diao**, J. Ding, V. Tarokh, **Restricted Recurrent Neural Networks**, *IEEE BigData 2019*
- J. Ding, **E. Diao**, V. Tarokh, **A Penalized Method for the Predictive Limit of Learning**, *ICASSP 2018*

奖项

- **Student Travel Award** | IEEE BigData 2019 12/2019
- **ECE Senior Scholar Award** | Georgia Institute of Technology 04/2016
- **President Undergraduate Research Award** | Georgia Institute of Technology 06/2015