Qingzhong **Ai**

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Education

University of Electronic Science and Technology of China *(UESTC)* *Chengdu, China*

Ph.D candidate in School of Computer Science and Engineering *Sept. 2018 - PRESENT*

Statistical Machine Intelligence Learning Laboratory (SMILELAB)

Adviser: Zenglin Xu (PROFESSOR)

Jilin University *Changchun, Jilin*

Bachelor Degree in College of Computer Science and Technology *Sept. 2014 - June 2018*

Research Interests

- **Deep Generative Models:** Familiarity with common deep generative models such as Variational Autoencoders (VAEs), Generative Adversarial Networks (GANs), Flow models (Flows). Understand the theoretical support behind the models and be familiar with code implementations of models based on deep learning frameworks (e.g. Pytorch).
- **Approximation Inference:** Understand Bayesian theory and its application in deep learning. Be familiar with the latent variable model and understand Bayesian posterior inference algorithms based on the latent variable model.
- **Adverserial Attack:** Understanding of common attacks on depth models and defense methods, such as PGD, FGSM and other attacks, as well as AT and other defense methods.

Internship

Huawei Noah's Ark Lab *Shenzhen, China*

Advisers: Pengyun Wang and Jianfeng Zhang *Dec. 2021 - Dec. 2022*

- **Focus:** Class-imbalanced problem; Data restoration
- **Project:** Responsible for designing a over-sampling algorithm based on the deep generative model to solve the data class-imbalanced problem in industrial data (e.g., anomaly detection); Research on battery charging and discharging data restoration algorithm.

Research Activities

Publications:

"Conf-MVAE: Multimodal Variational Autoencoder with Contrastive Normalizing Flow" *Under review in ICML 2023*

Authors: **Qingzhong Ai**, Lirong He, Pengyun Wang, Jianfeng Zhang, Zenglin Xu

"Boosting Adversarial Robustness via Self-Paced Adversarial Training" *Under review in ICML 2023*

Authors: Lirong He, **Qingzhong Ai**, Xincheng Yang, Yazhou Ren, Qifan Wang, Zenglin Xu

"Generative Oversampling for Imbalanced Data via Majority-Guided VAE" *AISTATS 2023*

Authors: **Qingzhong Ai**, Pengyun Wang, Lirong He, Liangjian Wen, Lujia Pan, Zenglin Xu

"Edge Enhancement Improves Adversarial Robustness in Image Classification" *Neurocomputing*

Authors: Lirong He, **Qingzhong Ai**, Yuqing Lei, Lili Pan, Yazhou Ren, Zenglin Xu

"Stein Variational Gradient Descent with Multiple Kernels" *Cognitive Computation*

Authors: **Qingzhong Ai**, Shiyu Liu, Lirong He, Zenglin Xu

"A One-Shot Reparameterization Method for Reducing the Loss of Tile Pruning on DNNs" *IJCNN 2022 (Oral)*

Authors: Yanchen Li, **Qingzhong Ai**, Fumihiko Ino

"ByPE-VAE: Bayesian Pseudocoresets Exemplar VAE" *NeurIPS 2021*

Authors: **Qingzhong Ai**, Lirong He, Shiyu Liu, Zenglin Xu

Referee Service:

PC member of AISTATS 2023, ICLR 2023, ECCV 2022, AAAI 2023, Neurocomputing and Neural Networks.