Weizhi An

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EDUCATION

Ph.D, The University of Texas at Arlington — **Texas, USA**
Computer Science, SMILE Lab, Advisor: Prof. Junzhou Huang — *Fall 2019 - Now*

Visiting Scholar, Osaka University — **Osaka, Japan**
Yagi Laboratory, Advisor: Yasushi Makihara — *2019.01 - 2019.05*

Master, Shenzhen University — **Shenzhen, China**
Computer Science, Advisor: Prof. Shiqi Yu — *Fall 2016 - Fall 2019*

Bachelor, Shenzhen University — **Shenzhen, China**
Computer Science — *Fall 2012 - Fall 2016*

PUBLICATIONS

1. **W. An**, et al. Causal Subgraphs and Information Bottlenecks: Redefining OOD Robustness in Graph Neural Networks. *ECCV 2024*.
2. **W. An**, et al. Advancing DNA Language Models through Motif-Oriented Pre-training with MoDNA. *BioMedInformatics 2024*.
3. **W. An**, et al. MoDNA: motif-oriented pre-training for DNA language model. *BCB 2022* (Oral).
4. R. Liao, **W. An**, et al. A novel view synthesis approach based on view space covering for gait recognition. *Neurocomputing 2021*.
5. J. Yang, C. Li, **W. An**, et al. Exploring Robustness of Unsupervised Domain Adaptation in Semantic Segmentation. *ICCV 2021*.
6. **W. An**, et al. Performance evaluation of model-based gait on multi-view very large population database with pose sequences. *Journal of IEEE transactions on biometrics, behavior, and identity science 2020*.
7. J. Yang, **W. An**, et al. Label-Driven Reconstruction for Domain Adaptation in Semantic Segmentation. *ECCV 2020*.
8. J. Yang, **W. An**, et al. Context-Aware Domain Adaptation in Semantic Segmentation. *WACV 2020*.
9. H. Ma, **W. An**, et al. Deep graph learning with property augmentation for predicting drug-induced liver injury. *Chemical research in toxicology 2020*.
10. R. Liao, **W. An**, et al. Dense-View GEIs Set: View Space Covering for Gait Recognition based on Dense-View GAN. *IJCB 2020*.
11. X. Wu, **W. An**, et al. Spatial-temporal graph attention network for video-based gait recognition. *ACPR 2020*.
12. **W. An**, et al. Improving gait recognition with 3d pose estimation. *CCBR 2018*.
13. **W. An**, et al. Interpretable Graph Neural Networks with Disentangled Subgraph. *TKDE 2024 (submitted)*.

EXPERIENCE

- **Multimodal Composed Image Retrieval** — **SMILE Lab, Research Assistant, April 2024 - Present**
  - Leveraging LLMs to overcome the scarcity of triplet data in composed image retrieval (CIR) for zero-shot retrieval.
  - Fine-tuning LLaVA using LoRA to leverage the powerful embedding capabilities of LLMs, targeting improved performance across various retrieval tasks.
- **Graph Interpretability and Graph OOD Generation** — **SMILE Lab, Research Assistant, Sep 2022 - Mar 2024**
  - Proposed a disentangled approach for identifying interpretable causal and invariant graphs in GNNs, achieving 11.19% higher interpretability and 3.40% better generalization than SOTA methods.
  - Improved GNN generalization by utilizing environment labels and implementing an information bottleneck to enhance out-of-distribution robustness.
- **Language Model in Genomics** — **Collaboration with Tencent AI Lab, Sep 2021 - Dec 2021**
  - Self-motivated to enhance genomic sequence analysis by pretraining language models on large-scale genomic data.
  - Integrated motif features into the Electra model, surpassing SOTA across various downstream tasks.
  - Explored the use of adaptive graph neural networks for predicting protein-drug binding sites.
- **Domain Adaptation & Drug Discovery** — **SMILE Lab, Research Assistant, Sep 2019 - July 2021**
  - Developed an unsupervised domain adaptation framework for semantic segmentation, improving cross-domain feature alignment and reducing translation bias, achieving strong performance in synthetic to real urban scenes.
  - Explored various GNNs for drug property prediction.
- **Multi-View Gait Recognition Dataset Development** — **Yagi Lab, Visiting Researcher, Jan 2019 - May 2019**
  - Developed the first multi-view skeleton dataset for gait recognition with over 10,000 people, now widely used in research.
- **Gait Recognition on cross-view conditions** — **Watrix.ai, Machine Learning Engineer Intern, July 2018. - Dec 2018**
  - Pioneered 3D skeletons for gait recognition, achieving superior performance over 2D models in cross-view conditions.
  - Developed GAN to generate dense-view gait images, significantly improving recognition by addressing view variance.