

EDUCATION

Ph.D. in Computer Engineering, *University of Illinois at Urbana-Champaign* SEP 2019 - MAY 2024
Computer Vision and Robotics Laboratory, GPA: 3.95/4.0

RESEARCH AREA

General area of Computer Vision and Multimodal Deep Learning.

- ◆ **Video Understanding:** Video Parsing, Action Recognition and Localization, Video Generation
- ◆ **LLM:** LLM for Video summarization, In-Context Learning, LLM Evaluation, Hallucination Detection
- ◆ **Multimodal:** Language Grounding, Language-Vision Pre-Training, Text to Image Generation

EMPLOYMENT EXPERIENCE

- ◆ **Research Intern - Google, CA, USA** MAY 2023 - AUG 2023
 - Build video summarization prototype framework with various LLMs via zero- or few-shot learning.
 - Improve the summary quality by in-context learning with LLM self-correction and regeneration.
 - Implemented and performed experiments on video datasets on XManager platform with unit tests
- ◆ **Applied Scientist Intern - Amazon, WA, USA** MAY 2022 - AUG 2022
 - Designed prompting large language-image models with commonsense priors for action recognition.
 - Fine-tuned proposed action recognition model and evaluated its effectiveness on two datasets in AWS.

TECHNICAL SKILLS

Programming: Python, Java, SQL, JavaScript, C++ **ML Library:** Pytorch, Fairseq, Huggingface

SELECTED RESEARCH PROJECTS

- ◆ **Multimodal Hierarchical Video Understanding and Synthesis** SEP 2019 - NOW
 - Proposed unsupervised 3D pose estimation method by object tracking for video activity recognition.
 - Modeled complex activities for activity recognition by extracting hierarchical grammar from videos.
 - Introduced multimodal video understanding method to model interplay between video & language.
 - Utilized extracted action grammars for video synthesis.

SELECTED PUBLICATIONS

- Jiangong Lia, Angela R. Green-Miller, **Xiaodan Hu** and others, "Barriers to Computer Vision Applications in Pig Production Facilities", in *Journal of Computer and Electronics in Agriculture* 2022
- **Xiaodan Hu**, Narendra Ahuja, "Unsupervised 3D Pose Estimation for Hierarchical Dance Video Recognition", in *ICCV* 2021.
- **Xiaodan Hu** et al., "MUSE: Illustrating Textual Attributes by Portrait Generation", in *MIPR* 2021.
- **Xiaodan Hu** et al., "Non-Stationary Content-Adaptive Projector Resolution Enhancement", in *Journal of Signal Processing: Image Communication*, September 2021
- Zilong Zhong, Zhong Qiu Lin, Rene Bidart, **Xiaodan Hu** and others, "Squeeze-and-Attention Networks for Semantic Segmentation", in *CVPR* 2020.
- Manling Li et al., "GAIA at SMKBP 2020-a dockerized multi-media multi-lingual knowledge extraction, clustering, temporal tracking and hypothesis generation system", in *TAC* 2020
- **Xiaodan Hu** et al., "ClearGAN: Photo-Realistic High-Resolution Text-to-Image Synthesis via Joint Inter-modal and Intra-modal Attention Modeling", in *CVPRW* 2019.

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- **Xiaodan Hu** et al., “RUNet: A Robust UNet Architecture for Image Super-Resolution”, *CVPRW* 2019
 - **Xiaodan Hu** et al., “ProstateGAN: Mitigating Data Bias via Prostate Diffusion Imaging Synthesis with Generative Adversarial Networks,” in *ML4H Workshop at NeurIPS* 2018
 - **Xiaodan Hu** et al., “Device, System and Method for Enhancing One or More of High Contrast Regions and Text Regions in Projected Images”, *US patent US-9728142-B2*
 - **Xiaodan Hu** et al., “Robust Visual Enhancement of Moving Contents in Projected Imagery”, *SID* 2019
 - **Xiaodan Hu** et al., “Text Enhancement in Projected Imagery”, in *CVIS* 2018
 - **Xiaodan Hu** et al., “Motion Detection in High-Resolution Enhancement”, in *CVIS* 2017

SELECTED AWARDS AND CERTIFICATE

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| 2023 | Shun Lien Chuang Memorial Award for Excellence in Graduate Education, <i>UIUC</i> |
| 2023 | Yunni and Maxine Pao Memorial Fellowship, <i>UIUC</i> |
| 2022 | Amazon Post-Internship Fellowship, <i>Amazon</i> |
| 2022 | Rambus Computer Engineering Fellowship, <i>UIUC</i> |
| 2022 | Member of Mavis Future Faculty Fellows and MAVIS Fellowship, <i>UIUC</i> |
| 2019 | Travel Award, <i>CVPR 2019</i> |
| 2019 | Student Travel Grant, <i>SID Display Week 2019</i> |
| '17-'19 | International Masters Student Award, <i>University of Waterloo</i> |
| 2018 | Faculty of Engineering Graduate Scholarship, <i>University of Waterloo</i> |
| 2018 | Certificate of the Fundamentals of University Teaching Program, <i>University of Waterloo</i> |

ACADEMIC SERVICES

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| 2023 | Program Committee: <i>WACV, CVPR, EMNLP, ACL, ACL Demo, EAACL Demos, ICLR, ACL ARR</i> |
| 2022 | Program Committee: <i>ECCV, EMNLP Demo, ACL Demo, NAACL, ACL ARR</i> |
| '19-'21 | Session Chair & Program Committee: <i>Conference on Vision & Intelligent Systems</i> |
| 2021 | Program Committee: <i>ACL Demo</i> |