Huijuan Xu

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Research Appointments

Pennsylvania State University–University Park Aug 2021 - Present
Department of Computer Science and Engineering *State College, PA*
Assistant Professor

Institute for Computational and Data Sciences
Affiliate Faculty

Center for Socially Responsible Artificial Intelligence
Affiliate Faculty

University of California, Berkeley Oct 2018 - Aug 2021
Postdoc Scholar *Berkeley, CA*
Advisor: Prof. Trevor Darrell

Disney Research Pittsburgh Jun 2017 - Sep 2017
Research Intern *Pittsburgh, PA*
Advisor: Prof. Leonid Sigal

Education

Boston University Sep 2018
Ph.D., Computer Science *Boston, MA*
Dissertation title: Vision and language understanding with localized evidence
Advisor: Prof. Kate Saenko
Committee: Prof. Emily Whiting, Prof. Margrit Betke, Prof. Stan Sclaroff, Prof. Leonid Sigal

Graduate University of Chinese Academy of Sciences Jul 2012
M.S., Computer Science *Beijing, China*
Thesis title: Bayesian network and probability inference
Advisor: Prof. Hua Yu

Hefei University of Technology Jul 2009
B.S., Computer Science *Hefei, China*
Thesis title: Adaptive online exam system

Peer-Reviewed Conference Publications

[1]. Zhi Li, Lu He, **Huijuan Xu**. Weakly-Supervised Temporal Action Detection for Fine-Grained Videos with Hierarchical Atomic Actions. European Conference on Computer Vision (ECCV), 2022.

[2]. Jin Liu, Chongfeng Fan, Fengyu Zhou, **Huijuan Xu**. Syntax Controlled Knowledge Graph-to-Text Generation with Order and Semantic Consistency. North American Chapter of the Association for Computational Linguistics (NAACL Findings), 2022.

[3]. Zhekun Luo, Shalini Ghosh, Devin Guillory, Keizo Kato, Trevor Darrell, **Huijuan Xu**. Disentangled Action Recognition with Knowledge Bases. North American Chapter of the Association for Computational Linguistics (NAACL), 2022.

[4]. Baifeng Shi, Qi Dai, Judy Hoffman, Kate Saenko, Trevor Darrell, and **Huijuan Xu**. Temporal Action Detection with Multi-level Supervision. IEEE International Conference on Computer Vision (ICCV), 2021.

[5]. Yinbo Chen, Zhuang Liu, **Huijuan Xu**, Trevor Darrell, Xiaolong Wang. Meta-Baseline: Exploring Simple Meta-Learning for Few-Shot Learning. International Conference on Computer Vision (ICCV), 2021.

[6]. Reuben Tan, **Huijuan Xu**, Kate Saenko, and Bryan A. Plummer. LoGAN: Latent Graph Co-Attention Network for Weakly-Supervised Video Moment Retrieval. IEEE Winter Conference on Applications of Computer Vision (WACV), 2021.

[7]. Baifeng Shi, Judy Hoffman, Kate Saenko, Trevor Darrell, and **Huijuan Xu**. Auxiliary Task Reweighting for Minimum-Data Learning. Neural Information Processing Systems (NeurIPS), 2020.

[8]. Zhekun Luo, Devin Guillory, Baifeng Shi, Wei Ke, Fang Wan, Trevor Darrell, and **Huijuan Xu**. Weakly-Supervised Action Localization with Expectation-Maximization Multi-Instance Learning. European Conference on Computer Vision (ECCV), 2020.

[9]. Roei Herzig*, Amir Bar*, **Huijuan Xu**, Gal Chechik, Trevor Darrell, and Amir Globerson. Learning Canonical Representations for Scene Graph to Image Generation. European Conference on Computer Vision (ECCV), 2020.

[10]. Joanna Materzynska, Tete Xiao, Roei Herzig, **Huijuan Xu***, Xiaolong Wang*, and Trevor Darrell*. Something-Else: Compositional Action Recognition with Spatial-Temporal Interaction Networks. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2020.

[11]. Ximeng Sun, **Huijuan Xu**, and Kate Saenko. TwoStreamVAN: Improving Motion Modeling in Video Generation. IEEE Winter Conference on Applications of Computer Vision (WACV), 2020.

[12]. Roei Herzig*, Elad Levi*, **Huijuan Xu***, Eli Brosh, Amir Globerson, Trevor Darrell. Classifying Collisions with Spatio-Temporal Action Graph Networks. IEEE/CVF International Conference on Computer Vision Workshop (ICCVW), 2019.

[13]. Yi Zhu, Yanzhao Zhou, **Huijuan Xu**, Qixiang Ye, David Doermann, and Jianbin Jiao. Learning Instance Activation Maps for Weakly Supervised Instance Segmentation. IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2019.

[14]. **Huijuan Xu**, Kun He, Bryan A. Plummer, Leonid Sigal, Stan Sclaroff and Kate Saenko. Multilevel Language and Vision Integration for Text-to-Clip Retrieval. Thirty-Third AAAI Conference on Artificial Intelligence (AAAI), 2019.

[15]. **Huijuan Xu**, Boyang Li, Vasili Ramanishka, Leonid Sigal and Kate Saenko. Joint Event Detection and Description in Continuous Video Streams. IEEE Winter Conference on Applications of Computer Vision (WACV), 2019.

[16]. Kia Xu, Guorong Li, **Huijuan Xu**, Weigang Zhang, and Qingming Huang. Edge Guided Generation Network for Video Prediction. IEEE International Conference on Multimedia and Expo (ICME), 2018.

[17]. **Huijuan Xu**, Abir Das, and Kate Saenko. R-C3D: Region Convolutional 3D Network for Temporal Activity Detection. IEEE/CVF International Conference on Computer Vision (ICCV), 2017.

[18]. **Huijuan Xu** and Kate Saenko. Ask, Attend and Answer: Exploring Question-Guided Spatial Attention for Visual Question Answering. European Conference on Computer Vision (ECCV), 2016.

[19]. Subhashini Venugopalan, **Huijuan Xu**, Jeff Donahue, Marcus Rohrbach, Raymond Mooney and Kate Saenko. Translating Videos to Natural Language Using Deep Recurrent Neural Networks. North American Chapter of the Association for Computational Linguistics (NAACL), 2015.

[20]. Jinke Jiang, Juyun Wang, Hua Yu, **Huijuan Xu**. Poison Identification Based on Bayesian Network: A Novel Improvement on K2 Algorithm via Markov Blanket. International Conference of Advances in Swarm Intelligence (ICSI), 2013.

[21]. **Huijuan Xu**, Hua Yu, Juyun Wang and Jinke Jiang. Exploration of Greedy Hill-Climbing Search in Markov Equivalent Class Space. International Conference on Artificial Intelligence (ICAI), 2012.

[22]. **Huijuan Xu**, Hua Yu and Juyun Wang. Poison Identification Based on Bayesian Method in Biochemical Terrorism Attacks. Advanced Science Letters (SCIE, ISSN: 1936-6612), Vol. 5, 1-5, 2012.

Journals

[1]. **Huijuan Xu**, Abir Das, and Kate Saenko. Two-Stream Region Convolutional 3D Network for Temporal Activity Detection. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2019.

[2]. Tianliang Zhang, Zhenjun Han, **Huijuan Xu**, Baochang Zhang, Qixiang Ye. CircleNet: Reciprocating Feature Adaptation for Robust Pedestrian Detection. IEEE Transactions on Intelligent Transportation Systems (T-ITS), 2019.

Workshop Short Papers

[1]. **Huijuan Xu**, Lizhi Yang, Stan Sclaroff, Kate Saenko, and Trevor Darrell. Spatio-Temporal Action Detection with Multi-Object Interaction. The Seventh International Workshop on Egocentric Perception, Interaction and Computing (EPIC) at ECCV, 2020.

[2]. **Huijuan Xu**, Ximeng Sun, Eric Tzeng, Abir Das, Kate Saenko, and Trevor Darrell. Revisiting Few-Shot Activity Detection with Class Similarity Control. Visual Learning with Limited Labels (VL3) Workshop at CVPR, 2020.

[3]. **Huijuan Xu**, Boyang Li, Vasili Ramanishka, Leonid Sigal and Kate Saenko. Joint Event Detection and Description in Continuous Video Streams. Human Activity Detection in Multi-Camera, Continuous, Long-Duration Video (HADCV) Workshop at WACV, 2019.

[4]. **Huijuan Xu**, Abir Das, and Kate Saenko. R-C3D: Region Convolutional 3D Network for Temporal Activity Detection. ActivityNet Large Scale Activity Recognition Challenge at CVPR, 2017.

[5]. **Huijuan Xu**, Abir Das, and Kate Saenko. R-C3D: Region Convolutional 3D Network for Temporal Activity Detection. Charades Activity Challenge at CVPR, 2017.

[6]. **Huijuan Xu** and Kate Saenko. Dual Attention Network for Visual Question Answering. 2nd Workshop on Storytelling with Images and Videos (VisStory) at ECCV, 2016.

[7]. **Huijuan Xu** and Kate Saenko. Ask, Attend and Answer: Exploring Question-Guided Spatial Attention for Visual Question Answering. Visual Question Answering (VQA) Challenge at CVPR, 2016.

[8]. **Huijuan Xu**, Subhashini Venugopalan, Vasili Ramanishka, Marcus Rohrbach and Kate Saenko. A Multi-Scale Multiple Instance Video Description Network. First workshop on Closing the Loop Between Vision and Language (CLVL) at ICCV, 2015.

Research Grants

[1]. Microsoft Award: Video Structure Representation with External Knowledge 2021-2022
$7,000 (Azure cloud credits)

[2]. ICDS Pre-Seed Grant: Exploring Diversity, Equity, and Inclusion as It Relates to Graduate Admissions 2021-2022
$5,000, Co-PI

Professional Activities

Senior Program Committee

o Association for the Advancement of Artificial Intelligence (AAAI) Conference on Artificial Intelligence 2023

Area Chair

o ACM International Conference on Multimedia (ACMMM) 2022

Tutorial and Workshop Organizer

o 2nd Comprehensive Tutorial on Video Modeling at CVPR 2021

Journal Reviewer

⋄ Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

⋄ International Journal of Computer Vision (IJCV)

⋄ IEEE Transactions on Image Processing (TIP)

⋄ ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)

⋄ Pattern Recognition (PR)

⋄ IEEE Transactions on Multimedia (MM)

⋄ IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)

⋄ IEEE Internet of Things Journal (IoT)

⋄ IEEE Transactions on Artificial Intelligence (TAI)

⋄ IEEE Transactions on Automation Science and Engineering (T-ASE)

⋄ IEEE/ASME Transactions on Mechatronics (TMECH)

⋄ Information Processing and Management (IPM)

Conference Reviewer/Program Committee Member

◇ Conference on Computer Vision and Pattern Recognition (CVPR)　　　　　　　　　　2018-2022

◇ International Conference on Computer Vision (ICCV)　　　　　　　　　　　　　　　2017, 2019

◇ European Conference on Computer Vision (ECCV)　　　　　　　　　　　　2018, 2020, 2022

◇ Asia Conference on Computer Vision (ACCV)　　　　　　　　　　　　　　　　　　　2018

◇ Conference of the North American Chapter of the Association for Computational Linguistics (NAACL)　2019

◇ International Joint Conferences on Artificial Intelligence (IJCAI)　　　　　　　　　2019, 2020

◇ Association for the Advancement of Artificial Intelligence (AAAI) Conference on Artificial Intelligence　2020, 2022

◇ International Conference on Machine Learning (ICML)　　　　　　　　　　　　　　　2020

◇ Conference on Neural Information Processing Systems (NeurIPS)　　　　　　　　2021, 2022

◇ Conference on Empirical Methods in Natural Language Processing (EMNLP)　　　　2021

◇ International Conference on Learning Representations (ICLR)　　　　　　　　　　　2022

Workshop Reviewer/Program Committee Member

◇ Women in Computer Vision (WiCV) Workshop　　　　　　　　　　　　　　　2018, 2019

◇ Human Activity Detection in Multi-Camera, Continuous, Long-Duration Video (HADCV) Workshop　2020, 2022

◇ International Workshop on Deep Learning for Human-Centric Activity Understanding (DL-HAU)　2021

Teaching Experiences

PSU CSE597: Vision and Language　　　　　　　　　　　　　　　　　　Fall 2022
Instructor

PSU CSE586/EE554: Computer Vision II　　　　　　　　　　　　　　Spring 2022
Instructor

Advising & Mentoring

Students Supervised at PSU

◇ Shu Zhao, PhD

◇ Xinjie Li, PhD

◇ Parker Sell, Master, Schreyer Honors College

◇ Justin Huang, Undergraduate, Schreyer Honors College

◇ Thomas Foltz, Undergraduate, Schreyer Honors College

Graduate Supervisory Committees

◇ Jiachen Liu, PhD, PSU

◇ Zhaohui Li, PhD, PSU

Students Supervised before PSU

◇ Zhi Li, Master, UC Berkeley (now at Quantcast)

◇ Zhekun Luo, Master, UC Berkeley (now at Nvidia)

◇ Baifeng Shi, Undergraduate, Peking University (now PhD at UC Berkeley)

Other Service

◇ Machine Learning and Security, NSF REU Site Program at PSU, Mentor　　　　　　2022

◇ Schreyer Honors College's Faculty Selection Committee at PSU, Member　　　　　2022

◇ ICDS Symposium Planning Committee at PSU, Member   2021-2022

◇ Personnel Committee at PSU, Member   2021-2022

◇ PhD Admission Committee at PSU, Member   2021-2022

◇ Outreach Committee at PSU, Member   2021-2022

◇ BAIR Undergraduate Mentoring Program, Mentor   2019

- Anjali Kantharuban, Undergraduate, UC Berkeley
- Grace Luo, Undergraduate, UC Berkeley

◇ Graduate Admission Committee at UC Berkeley, Member   2019, 2020

◇ Boston University Computer Vision and Deep Learning Reading Group, Organizer   2016

Honors & Awards

◇ UC Berkeley Rising Star in EECS   2020

◇ Distinguished Program Committee Member at IJCAI   2019

◇ Doctoral Consortium Award at WACV   2019

◇ MIT Rising Star in EECS   2018

◇ Travel Grant for Women in Computer Vision (WiCV) Workshop at CVPR   2017-2019

◇ Most Innovative Award in ActivityNet Challenge at CVPR   2017

◇ Outstanding Graduate of Anhui Province   2009

◇ China National Scholarship   2007

◇ Hefei University of Technology Undergraduate Scholarship   2006-2008

Invited talks & Presentations

◇ Compositional Action Recognition with Semantic Scene Graphs and Knowledge Transformation
The AiBee R&D Seminar Series, Aibee US Corporation   2022

◇ Compositional Action Recognition with Semantic Scene Graphs and Beyond
AI meets Neuroscience Series,
Center for Artificial Intelligence Foundations and Engineered Systems (CAFE) at PSU   2022

◇ Toward Compositional Action Recognition Using Semantic Scene Graphs
The ActivityNet Large Scale Activity Recognition Challenge Workshop at CVPR   2021

◇ Spatio-Temporal Action Detection with Multi-Object Interaction
Seventh International Workshop on Egocentric Perception, Interaction and Computing (EPIC) at ECCV   2020

◇ Revisiting Few-shot Activity Detection with Class Similarity Control
Visual Learning with Limited Labels (VL3) Workshop at CVPR   2020

◇ Learning Activities from Few Examples
BAIR/BDD Computer Vision Fall 2019 Workshop, University of California, Berkeley   2019

◇ Vision and Language Understanding with Localized Evidence
University of California, Berkeley   2018

◇ Joint Event Detection and Description in Continuous Video Streams
Women in Computer Vision (WiCV) Workshop at CVPR   2018

◇ Bridge Image and Video Visual Features for Video Captioning
Disney Research, Pittsburgh   2017

◇ R-C3D: Region Convolutional 3D Network for Temporal Activity Detection
The ActivityNet Large Scale Activity Recognition Challenge Workshop at CVPR   2017