

Huijuan Xu

Department of Computer Science and Engineering
Pennsylvania State University–University Park

☎ +1 (510) 660-9108 • ✉ hkx5063@psu.edu • 🌐 visionlanguagelab.github.io

Research Appointments

Pennsylvania State University–University Park
Department of Computer Science and Engineering
Assistant Professor

Aug 2021 - Present
State College, PA

Institute for Computational and Data Sciences
Affiliate Faculty

Center for Socially Responsible Artificial Intelligence
Affiliate Faculty

University of California, Berkeley
Postdoc Scholar
Advisor: Prof. Trevor Darrell

Oct 2018 - Aug 2021
Berkeley, CA

Disney Research Pittsburgh
Research Intern
Advisor: Prof. Leonid Sigal

Jun 2017 - Sep 2017
Pittsburgh, PA

Education

Boston University
Ph.D., Computer Science

Sep 2018
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
M.S., Computer Science

Jul 2012
Beijing, China

Thesis title: Bayesian network and probability inference

Advisor: Prof. Hua Yu

Hefei University of Technology
B.S., Computer Science

Jul 2009
Hefei, China

Thesis title: Adaptive online exam system

Peer-Reviewed Conference Publications

- [1]. 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.
- [2]. 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.
- [3]. 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.
- [4]. Baifeng Shi, Judy Hoffman, Kate Saenko, Trevor Darrell, and **Huijuan Xu**. Auxiliary Task Reweighting for Minimum-Data Learning. Neural Information Processing Systems (NeurIPS), 2020. (Acceptance rate 20.1%)
- [5]. 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. (Acceptance rate 26%)
- [6]. 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. (Acceptance rate 26%)

- [7]. 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. (Acceptance rate 22.1%)
- [8]. Ximeng Sun, **Huijuan Xu**, and Kate Saenko. TwoStreamVAN: Improving Motion Modeling in Video Generation. IEEE Winter Conference on Applications of Computer Vision (WACV), 2020. (Acceptance rate 34.5%)
- [9]. 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.
- [10]. 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. (Acceptance rate 25.2%)
- [11]. **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. (Acceptance rate 16.2%)
- [12]. **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. (Acceptance rate 39%)
- [13]. 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. (Acceptance rate 30%)
- [14]. **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. (Acceptance rate 29%)
- [15]. **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. (Acceptance rate 26.6%)
- [16]. 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. (Acceptance rate 29.1%)
- [17]. 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.
- [18]. **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.
- [19]. **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 (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

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| [1]. Microsoft Award: Video Structure Representation with External Knowledge
\$7,000 (Azure cloud credits) | 2021-2022 |
| [2]. ICDS Pre-Seed Grant: Exploring Diversity, Equity, and Inclusion as It Relates to Graduate Admissions
\$5,000, Co-PI | 2021-2022 |

Professional Activities

Area Chair

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| ◦ ACM International Conference on Multimedia (ACMMM) | 2022 |
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Tutorial and Workshop Organizer

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| ◦ 2nd Comprehensive Tutorial on Video Modeling at CVPR | 2021 |
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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

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| ◊ 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 |
| ◊ 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
- ◇ 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 CSE586/EE554: Computer Vision II Spring 2022
Instructor

Advising & Mentoring

Students Supervised at PSU

- ◇ Parker Sell, Master
- ◇ Thomas Foltz, Undergraduate

Graduate Supervisory Committees

- ◇ Zhaohui Li, PhD, PSU

Students Supervised before PSU

- ◇ Zhekun Luo, Master, UC Berkeley (now at Nvidia)
- ◇ Baifeng Shi, Undergraduate, Peking University (now PhD at UC Berkeley)

Other Service

- ◇ CRA Career Mentoring Workshop, Participant 2022
- ◇ ASEE's Essentials of Effective Proposal Preparation, Participant 2022
- ◇ ICDS Symposium Planning Committee, Member 2022
- ◇ Machine Learning and Security, NSF REU Site Program at PSU, Mentor 2022
- ◇ Schreyer Honors College's Faculty Selection 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
- ◇ 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 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