

EDUCATION

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- **University of Maryland, College Park** Maryland, USA  
*Ph.D. in Computer Science; Advisor: Abhinav Shrivastava; GPA: 4.0/4.0* *Sept 2018 - Now*
- **Columbia University** New York, USA  
*Visiting Student in Computer Science; GPA: 4.0/4.0* *Jan 2017 - July 2017*
- **University of Chinese Academy of Sciences (UCAS)** Beijing, China  
*Bachelor in Computer Science; GPA: 3.88/4.0* *Sept 2014 - June 2018*

RESEARCH INTEREST

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My research interests broadly includes deep learning and computer vision. I am especially interested in action recognition, video understanding and analysis.

RESEARCH AND PROJECT

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- **Global Temporal Attention for Video Action Understanding** University of Maryland  
*Supervisor: Prof. Abhinav Shrivastava* *June 2019 - Nov 2020*
  - **Observations:** Modeling long-range temporal dependencies is of vital importance in video action recognition. Recent works capture the entangled spatial-temporal relationships by computing self-attention among all flattened pixel pairs, which fails to model temporal relations among frames explicitly. In addition, conventional self-attention that computes an instance-specific attention matrix can not generalize well across different samples.
  - **Highlights:** (i) the decoupled spatio-temporal self-attention design; (ii) randomly initialized global temporal attention matrix to capture generalized temporal structures; (iii) attention mechanism applied on pixel-level and region-level for complementary information.
  - **Results:** Our proposed global temporal attention module consistently enhances the temporal modeling and achieves the state-of-the-art performance on three video action recognition datasets.
- **Weighted Intersection over Union** University of Maryland  
*Supervisor: Prof. Abhinav Shrivastava* *Oct 2018 - Jan 2019*
  - **Observations:** Conventional object detection methods utilize a fixed IoU threshold to measure the quality of detection, which is not reasonable for small objects. Relatively low mAP for small objects may be caused by the metric invariant to object scales. Also, different tasks need different IoU metrics to achieve optimal performances.
  - **Results:** We propose a scale-variant IoU weighted by hyper-parameters (wIOU) to address both problems.

PUBLICATIONS & PREPRINTS

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- **Bo He\***, Xitong Yang\*, Zuxuan Wu, Hao Chen, Sernam Lim, Abhinav Shrivastava. *GTA: Global Temporal Attention for Video Action Understanding*. In CVPR 2021 Submission. [Arxiv Link](#)

EXPERIENCE

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- **Research Assistant** Institute for Advanced Computer Studies, University of Maryland  
*Supervisor: Prof. Abhinav Shrivastava* *Jan 2019 - Now*
- **Teaching Assistant** University of Maryland  
*CMSC216 - Introduction to Computer Systems* *Sept 2018 - Dec 2018*
  - Responsibility for coursework grading and project consulting.
- **Research Intern** Institute of Computing Technology, CAS  
*Supervisor: Prof. Xilin Chen and Prof. Meina Kan* *Sept 2017 - May 2018*
  - Research about facial attributes transferring based on generative adversarial networks.

SKILLS AND INTERESTS

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- **Programming Languages:** Python, C, Matlab, LaTeX, SQL, Java
- **Frameworks & Technologies:** Pytorch, OpenCV, Tensorflow