Aiyu Cui

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Education

University of Illinois at Urbana-Champaign *Urbana, IL*

Pursuing **PH.D.** in **Computer Science** *Aug. 2018 - Present*

- Supervised by **Prof. Svetlana Lazebnik**

Pennsylvania State University *State College, PA*

B.S. Honor in **Computer Science** and Minor in Mathematics (**Cumulative GPA: 3.89/4.00**) *Aug. 2014 - May 2018*

- Honor Thesis: Multiple Objects Tracking
- Supervised by **Profs. Robert Collins** and **Yanxi Liu**

Selected Research Experience

Semantic Interpretation Based Similarity Retrieval *Urbana,IL*

Computer Vision Group at UIUC, supervised by Dr. **Svetlana Lazebnik** *Aug. 2018 - Present*

- Train neural network sensitive to multiple semantic concepts and retrieval images based on it
- Investigate interpretibility of neural network and leveraging it to retrieval images more efficient
- Compare multiple methods for incremental learning and multi-task training

Human Motion/Action Tracking,Recognition and Analysis *State College, PA*

Lab of Perception, Action and Cognition at PSU,supervised by Drs. **Robert Collins** and **Yanxi Liu** *April 2017 - June 2018*

- Predict tendency to fall of human subjects in video via deep learning
- Evaluate pose estimation and action recognition based on multiple human skeleton representations
- Quantitatively analyze martial art skill level of subjects and give feedback to improve
- Speed up MoCap data cleaning process 20 times by improving tracking method with human body constraints

Selected Projects

Interpreting Transfer learning from ImageNet to Place365 *Urbana, IL*

UIUC *Oct 2018 - Dec 2018*

- reimplement Interpretable Basis Decomposition (IBD), a method to explain how a decision is made by a DNN
- Perform IBD on every stage of transfer learning from of classification task from ImageNet to Place365
- Analyze the interpretibilty of IBD and the process of transfer learning

Object Detection via Faster RCNN *Urbana, IL*

UIUC *August 2018 - Present*

- Reimplement Faster RCNN using ResNet as backbone via PyTorch in group
- Perform object detection task on VOC PASCAL 2012

Skills

Programming Language/Tools

- **Python**,**Matlab**, C/C++, LaTeX, HTML/CSS
- **Pytorch**, CUDA, OpenGL, Vicon Nexus, Django, Visual Studio, Azure

Knowledges

- CNN, RNN, DenseNet, ResNet, FasterRCNN, VAE, GAN
- Semantic Understanding, Action Recognition, Object Detection, Image Retrieval, Motion Analysis, Neural Network Interpretability
- Math, 3D Geometry, Linear Algebra, Applied Statistics, Numerical Analysis and etc.