

HAO YU

<http://cs-people.bu.edu/haoyu/>

Department of Computer Science, Boston University

+1-617-372-1630 \diamond haoyu@bu.edu

RESEARCH INTERESTS

I am interested in computer vision and applications of machine learning, especially in facial image processing and analysis.

EDUCATION

Boston University

PhD Student in Computer Science

Advisor: Prof. Margrit Betke

Sep 2019 - Present

Zhejiang University

B.E. in Computer Science and Technology

B.A. in English Language and Literature

Chu Kochen Honors College

Overall GPA: 3.95 / 4.0

Advisor: Prof. Jian Wu

Sep 2015 - Jun 2019

PUBLICATIONS

[1] Krishna Kumar Singh, **Hao Yu**, Aron Sarmasi, Gautam Pradeep, Yong Jae Lee, Hide-and-Seek: A Data Augmentation Technique for Weakly-Supervised Localization and Beyond, arXiv preprint arXiv:1811.02545, 2018.

RESEARCH PROJECTS

Web-based Camera Mouse with Virtual Keyboard

Under the supervision of Prof. Margrit Betke

September 2019 - Present

Boston University

- Developed a web-based camera mouse, which is an online assistive service that allows people to control the mouse pointer and type words on a computer with their head or eye movements.
- Used Posenet for online face detection and tracking with normal webcam in the browser.
- Implemented three input options: Dwell time, Reverse Crossing, and Swipe-and-Switch for efficient typing.

Facial Emotion Analysis for Videos of Presidential Candidates

Under the supervision of Prof. Margrit Betke

September 2019 - Present

Boston University

- Collected a database of YouTube videos of candidates for 2020 United States presidential election.
- Annotated the videos with 3 sentiment labels and 7 emotion labels using Crowd sourcing on Amazon Mechanical Turk.
- Created baseline method on the dataset, which uses CNN to extract image features and frame attention technique for video-based facial expression recognition.

Fake Face Video Detection Using Talking Profile

Under the supervision of Prof. Terence Sim

January 2019 - April 2019

National University of Singapore

- Proposed a detection algorithm for recognizing fake face videos generated by face swapping using autoencoders and generative adversarial networks (GANs).

- Used talking profile which consists of multiple types of facial and body motions to identify deepfakes.
- Trained a SVM classifier of talking profiles for each subject using real videos and test using fake videos.

Hide-and-Seek: A Data Augmentation Technique

Jul 2018 - Sep 2018

Under the supervision of Prof. Yong Jae Lee

University of California, Davis

- Applied Hide-and-Seek on improving performance of CNN models of Emotion Recognition, Age Estimation, Gender Estimation and Person Re-identification. The key idea of Hide-and-Seek is to randomly hide patches in a training image, which increases the variety of dataset while preserves spatial alignment.
- Achieved superior performance compared to previous methods for all tasks on the corresponding benchmarks.

Recognition of Invasive Cervical Cancer Based on CNN

May 2017 - May 2018

Under the supervision of Prof. Jian Wu

Zhejiang University

- Developed a visual recognition system of Colposcopy images for auxiliary diagnosis of invasive cervical cancer.
- Applied SE-ResNet on classification of colposcopy images.
- Obtained 90.86% sensitivity and 73.94% specificity on a dataset of 8556 images, which reached the level of qualified doctors.

PROFESSIONAL ACTIVITIES

Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)

2019

TEACHING

Introduction to Computer Science II (CS 112), Teaching Fellow, Boston University

Instructors: Christine Papadakis-Kanaris and David G. Sullivan

2020 Spring

HONORS AND AWARDS

- Meritorious Winner of COMAP’s Interdisciplinary Contest In Modeling (ICM) *2017, 2018*
- First-Class Scholarship for Excellence in Research and Innovation at ZJU *2017, 2018*
- Second-Class Scholarship for Outstanding Merits at ZJU *2016, 2018*

RELEVANT COURSEWORK

- **Graduate Coursework:** Machine Learning, Big Data Systems for Data Science, Deep Learning.
- **Undergraduate Coursework:** Computer Vision, Artificial Intelligence, Computer Graphics, Information Retrieval.

TECHNICAL STRENGTHS

Computer Languages

Python, C/C++, Java, Matlab, LaTeX

Deep Learning Frameworks

Tensorflow, PyTorch, Caffe, Keras

Toolkits

OpenCV, OpenGL