Shuaiyi Huang

(+86)18702128717 ⋄ huangshy@umd.edu ⋄ shuaiyihuang.github.io

EDUCATION

University of Maryland, College Park, Maryland, USA

Ph.D. in Computer Science, Sep 2020 -

- Supervisor: Prof. Abhinav Shrivastava

ShanghaiTech University, Shanghai, China

M.Sc. in Computer Science, Sep 2017 - June 2020

- GPA: 3.71/4.0
- Supervisor: Prof. Xuming He

Tongji University, Shanghai, China

B.E. in Software Engineering, Sep 2013 - July 2017

- **GPA: 4.62/5.0**
- **Rank: 12/180**

RESEARCH INTEREST

My research interests broadly include Deep Learning and Computer Vision, with a focus on scene understanding and low-level vision using strong or weak supervision. I am especially interested in correspondence, segmentation, occlusion-aware scene understanding, visual question answering, and video analysis.

PUBLICATIONS

- **Shuaiyi Huang**, Qiuyue Wang, Xuming He. Confidence-aware Adversarial Learning for Self-supervised Semantic Matching. *Chinese Conference on Pattern Recognition and Computer Vision (**PRCV**)*, 2020. **PDF Code**
- **Shuaiyi Huang**, Qiuyue Wang, Songyang Zhang, Shipeng Yan, Xuming He. Dynamic Context Correspondence Network for Semantic Alignment. *International Conference on Computer Vision (**ICCV**)*, 2019. **PDF Code**
- Chen Zhu, Yanpeng Zhao, **Shuaiyi Huang**, Kewei Tu, Yi Ma. Structured Attentions for Visual Question Answering. *International Conference on Computer Vision (**ICCV**)*, 2017. **PDF Code**

RESEARCH EXPERIENCES

Confidence-aware Adversarial Learning for Self-supervised Semantic Matching

Advisor: **Xuming He** 2019

- Highlights: (i) the first to consider the uncertainty of predictions in this task; (ii) the first to utilize a generative adversarial model to measure the quality of semantic correspondence.
- Two key parts in our pipeline: (i) a confidence-aware refinement procedure to propagate reliable information recursively; (ii) a novel and effective self-supervised adversarial learning framework.
- The relevant paper has been accepted in PRCV 2020.

Dynamic Context Correspondence Network for Semantic Alignment

Advisor: **Xuming He** 2018 - 2019

- Key observations: (i) local representations are sensitive to repetitive patterns and local ambiguities; (ii) there is a trade-off between localization precision and encoding semantic context.

- Three key parts in our pipeline: (i) an effective context-aware semantic representation encoding spatial layout for robust matching against local ambiguities; (ii) a novel dynamic fusion network to weave the advantages of both local and context cues; (iii) a multi-task loss to facilitate weakly-supervised learning.
- The relevant paper has been accepted in ICCV 2019.

Visual Question Answering
Advisor: **Yi Ma**, **Kewei Tu** 2017

- Highlights: (i) the first to explore structured attention in visual question answering to address the problem of limited receptive fields of CNNs; (ii) demonstrating how to unfold the iterative inference algorithms for CRF as recurrent layers in deep networks
- The relevant paper has been accepted in ICCV 2017.

TEACHING EXPERIENCES

- Teaching Assistant, CS 280: Deep learning 2018, ShanghaiTech University
  - ◇ Give tutorials on machine learning basics; design homework and provide the solutions; manage the grading and other administrative issues.

INTERNSHIPS

Algorithm Intern, **PerkinElmer**, Shanghai, China July - Dec, 2016
Work on *numerical calculation* related algorithm. Mentor: Sheng Ding

- Implemented boxcar smoothing, spline interpolation, etc. algorithms.
- Participated in research on spectra search, implement Local Sensitive Hashing algorithm in Matlab.

Software Engineering Intern, **CheXiang**, Shanghai, China July - Sep, 2015
Work on *data preprocessing,database* and *html*. Mentor: ChaoMeng Zeng

- Database with MySQL; HTML and javascript.

HONORS AND AWARDS

ShanghaiTech University Merit Student 2019

ShanghaiTech University Outstanding Student 2018

Second Prize & First Prize, Tongji University Academic Scholarship 2015, 2016

Tongji University National Encouragement Scholarship & Outstanding Student 2015

TECHNICAL SKILLS

Languages: Python, Matlab, C++/C, Java, Javascript, SQL
Frameworks & Technologies: Pytorch, OpenCV, Android, Node.js
Tools & Platforms: Git, Docker, Unity3D, Linux/Windows
Techniques in Computer Vision: Graph neural networks, Part-based representations for center voting, etc.

LEADERSHIP & VOLUNTEERING

Deputy director of the Ministry of literature and art 2014-2015
Tongji University