

Guangyuan Weng

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177 Huntington Ave, FL 22, Boston, MA 02115

EDUCATION

Northeastern University

Sept. 2021 - Present

Ph.D., Computer and Information Sciences

Boston, MA

- Research Interests: Machine Learning, Data Mining, Computational Social Science

ShanghaiTech University

Sept. 2017 - July 2021

B.E., Computer Science and Technology

Shanghai, China

- Advisors: Prof. David J. Crandall (Indiana University), Prof. Haipeng Zhang

RESEARCH EXPERIENCE

Wormpex AI Research

May 2023 - Nov. 2023

Research Intern (Advisor, Mentors: Prof. Gang Hua, Dr. Bo Liu, Dr. Haoxiang Li)

Bellevue, WA

- Explore an innovative memory structure that merges conventional retrieval and classification methods, focusing on long-tail image recognition
- Develop an importance module based on an self-attention mechanism for the retrieved K-Nearest Neighbors
- Extend the applicability to real-world scenarios, achieving State-of-the-Art performance in ImageNet-LT datasets

Visual Intelligence Lab, Northeastern University

Sept. 2021 - May 2023

Research Assistant (Advisor: Prof. Huaizu Jiang)

Boston, MA

- Explored visual models' induction capability by few-shot learning and compositional reasoning of novel concepts
- Learnt novel concepts contrastively by modeling them using synthetic images and graphs
- Transferred lessons learnt from synthetic data to real world settings for better human-object relation representation

IU Computer Vision Lab, Indiana University

July 2020 - June 2021

Research Intern (Advisor: Prof. David J. Crandall)

Bloomington, IN

- Focused on recognizing human actions in videos captured from *egocentric cameras* (e.g., google glass)
- Discovered how action-object associations in datasets influence the generalization ability of action recognition models
- Modeling the positions and sizes of hands and objects in the videos utilizing *graph convolutional neural network*

Financial Intelligence Lab, ShanghaiTech University

Mar. 2020 - June 2021

Research Assistant (Advisor: Prof. Haipeng Zhang, Prof. Qing Ke)

Shanghai, China

- Predicted human *Venture Capital* (VC) investment success of early-stage start-ups using *graph neural network*
- Discovered the influencing factors of VC investment behavior, e.g., academic achievements, concentration level, etc.
- Learnt node-level representation in each time period using self-attention and fine-tuning via supervised link prediction and node classification

PUBLICATIONS

Action Recognition based on Cross-Situational Action-object Statistics

- Tsutsui, Satoshi, Wang, Xizi, **Weng, Guangyuan**, Zhang, Yayun, Crandall, David, Yu, Chen
- *12th IEEE International Conference on Development and Learning (ICDL 2022)*

Advanced Mapping Robot and High-Resolution Dataset

- Chen, H., Yang, Z., Zhao, X., **Weng, G.**, Wan, H., Luo, J., Ye, X., Zhao, Z., He, Z., Dong, T., Schwertfeger, S.
- Journal of *Robotics and Autonomous Systems*

Towards Generation and Evaluation of Comprehensive Mapping Robot Datasets

- Chen, H., Zhao, X., Luo, J., Yang, Z., Zhao, Z., Wan, H., Ye, X., **Weng, G.**, He, Z., Dong, T., Schwertfeger S.
- Workshop on Dataset Generation and Benchmarking of SLAM Algorithms for Robotics and VR/AR of the *2019 IEEE International Conference on Robotics and Automation (ICRAW 2019)*

ACADEMIC PROJECTS

Automation of Hi-C Guided Scaffolding Onto Chromosome Level

May 2020 - Jun 2020

- Evaluated a software (3d-DNA) algorithms and explored the underlying mechanisms by utilizing the Hi-C (a high-throughput 3D genome sequencing technology) data of a rodent (i.e., desert mouse)
- Customized an optimized set of parameters for *successfully scaffolding* this species DNA information to 24 chromosomes; Python, and AWK used

Music Composition by Markov-Like Models

Dec 2019 - Jan 2020

- Proposed two *Markov-Like Models* based on music theory, i.e., first-order and second-order models
- Trained multiple levels of *Markov-Like Models* on piano pieces from the modern era and improved the models' ability to generate new pieces; Python used

Trilogy of Life

Jul 2018

- Advisor: Jayson Haebich, Cambridge School of Art
- Represented a story by using *projection mapping* with Processing (Java); completed the project within 24 hours

Nurse Turtlebot

Jun 2018

- Recognized *gesture and speech* to deliver items to patients by using turtle robot
- Performed *Simultaneous Localization and Mapping* (SLAM) in a complicated area
- Captured gestures by *Leap Motion*; finished the project within 24 hours in *The Hack 2018* (Hackathon)

ACTIVITIES

CS5330 Pattern Recognition and Computer Vision (21 Fall, 22 Fall)

Sept. 2022

Teaching Assistant, Northeastern University

Boston, MA

Upenn Curiosity AI Robotics and Smart Material Summer Camp

Aug. 2019

Teaching Assistant supervised by Prof. Jianbo Shi, GRASP Lab, University of Pennsylvania

Shanghai, China

2018 IEEE ComSoc Summer School on Fog Computing

June 2018

IEEE ComSoc, OpenFog Consortium

Shanghai, China

HONORS

ShanghaiTech Merit Students (2019-2020, Top 5%)

Dec. 2020

ShanghaiTech University

ShanghaiTech Scholarship for Outstanding Undergraduate Students (RMB 30,000)

Dec. 2020

ShanghaiTech University

Global Talent Attraction Program, International Summer Research Fellowship (\$ 4,000)

Feb. 2020

Indiana University Bloomington

SKILLS

Languages

Chinese (Native), English (TOEFL-iBT 112)

Computer Languages

Python, C++, C, Rust, MATLAB, AWK

Protocols & APIs

PyTorch, scikit-learn, Robot Operating System, Processing (Java), L^AT_EX