Haoye CAI (Mark)

Email: hcaiaa@stanford.edu | Website: caihaoye16.github.io | Mobile: +852 5610-7166

EDUCATION

Stanford University, US Sept. 2018 – Pres.
Master of Science in Computer Science and Mathematics

The Hong Kong University of Science & Technology, HK Sept. 2014 – May. 2018
Bachelor of Science in Computer Science and Mathematics - GPA**: 4.010** / 4.3 (**Top 1%**) - Major GPA: **4.18** / 4.3
Related courses: Honors Calculus, Honors Analysis, Honors OOP & Data Structure, Honors Algorithms, AI (graduate level)

Georgia Institute of Technology, US Jan. 2017 – May. 2017
Exchange in Spring, 2017 - GPA**: 4.0** / 4.0
Related courses: Machine Learning (graduate level), Game AI (graduate level)

RESEARCH

Deep Video Generation, Prediction and Completion of Human Action Sequences, HKUST June 2017 – Pres.
- Paper link | Project Website | Video Demo **- In ECCV 2018, First Author** *Supervisor*: Prof. Chi Keung Tang

- Proposed and implemented a two-stage generative model to solve human video generation, prediction and completion uniformly.
- Generation: in the first stage, utilized GAN and WGAN to train a generator that maps random noise into human pose sequences. In the second stage, trained a network that transforms poses to real human images, using feature-matching loss.
- Prediction/Completion: optimized in the latent space by back-propagating the L1 distance to constraints using BFGS algorithm.
- Our method outperformed existing state-of-the-art methods both qualitatively and quantitatively.

***(Medical)* Cross-modality Training to Learn Cardiac Motion Flow for SSFP MRI Images**, GaTech Jan -- May. 2017
- Project Website | Video Demo **- In process of submission, First Author** *Supervisor*: Prof. James Rehg

- Utilized motion from another modality DENSE as supervision to learn cardiac motion flow in ordinary SSFP MRI images.
- Conducted spatial-temporal registration for the two modalities. Trained a Siamese Network to learn robust feature embeddings for SSFP image patches. Conducted patch matching and edge-preserving interpolation to produce dense flow fields.
- Our method outperformed existing state-of-the-art optical flow algorithms applied on this medical imaging domain.

INTERNSHIP

Tencent, YouTu X Lab, Shenzhen Dec. 2017 – Feb. 2018
Text Recognition, R&D Intern

- Built text recognition pipeline using CRNN and attention model. Achieved state-of-the-art text recognition accuracy.
- Built end-to-end text detection-recognition pipeline, combining two tasks in one model. Implemented feature transformation to enable our recognition network to reuse features obtained by the detection network

SenseTime Group Limited, Hong Kong June -- Aug. 2017
3D Human Pose Estimation for Monocular Images, R&D Intern, Depth and Reconstruction Team

- Applied fully-connected neural nets to learn 2D-to-3D mapping. Incorporated raw image information by building a DenseNet to extract features which are then concatenated with 2D pose vectors in multi-stage architecture.
- Achieved state-of-the-art performance in this task.

CONTEST

Champion in CodeIT Suisse Coding Challenge, Credit Suisse, Hong Kong (Github page) Oct. 2016

- Won first place in the hackathon competition as the main contributor.
- Applied techniques including Nodejs Cluster, Message Queue, asynchronous method invocation, Firebase, D3.js to build a high-frequency arbitrage trading solution using master-slave architecture.

SELECTED AWARDS

- Hong Kong University of Science and Technology Academic Achievement Medal May. 2018
- Dean's List (for each semester) 2015 - 2018
- The Hong Kong Electric Co. Ltd. Scholarship Mar. 2016
- The Cheng Foundation Scholarship for Chinese Mainland Undergraduate Students Mar. 2018
- University's Scholarship Scheme for Continuing Undergraduate Students 2016 - 2018
- Second prize in National Olympiad in Informatics in Provinces Oct. 2012

EXTRACURRICULAR ACTIVITIES

China Entrepreneur Network, HKUST, Hong Kong *IT Secretary & Internal Secretary* Feb. 2015 – Feb. 2016

- Built and maintained the society's official website
- Organized and coordinated Social Innovation Forum, Innovative Entrepreneurship Training Program, and Member Reunion