Ji Dai

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Education

University of California, San Diego

La Jolla, CA, U.S.A.

PH.D. IN ELECTRICAL ENGINEERING — *Sep. 2015 - present*

- Advisor: Prof. Truong Nguyen
- Research: Learning based optical flow estimation and applications

Boston University

Boston, MA, U.S.A.

M.S. IN ELECTRICAL ENGINEERING — *Sep. 2013 - Jun. 2015*

- Advisor: Prof. Janusz Konrad & Prof. Prakash Ishwar
- Thesis: Towards Privacy-Preserving Human Activity Recognition

Shanghai Jiao Tong University

Shanghai, China

B.S. IN ELECTRICAL ENGINEERING — *Sep. 2009 - Jun. 2013*

- Advisor: Prof. Xinbing Wang
- Thesis: An energy saving access method for WBAN network

Publication

Pyramid Structure Optical Flow Learning with Motion Cue

CNF

J. Dai, S. Huang, T. Nguyen

IEEE International Conference on Image Processing 2018 (pdf)

Accurate and Efficient Video De-fencing Using Convolutional Neural Networks and Temporal Information

CNF

Chen Du, Byeongkeun Kang, Zheng Xu, **Ji Dai**, Truong Nguyen

IEEE International Conference on Multiemedia and Expo 2018 (pdf)

View Synthesis with Hierarchical Clustering based Occlusion Filling

CNF

J. Dai, T. Nguyen

IEEE International Conference on Image Processing 2017 (pdf)

Towards Privacy-Preserving Activity Recognition Using Extremely Low Resolution Temporal and Spatial Cameras

CNF

J. Dai, J. Wu, B. Saghafi, J. Konrad, and P. Ishwar

IEEE Computer Society Workshop on Analysis and Modeling of Faces and Gestures at CVPR 2015 (pdf)

Towards Privacy-Preserving Recognition of Human Activities

CNF

J. Dai, B. Saghafi, J. Wu, J. Konrad, and P. Ishwar

IEEE International Conference on Image Processing 2015 (pdf)

Projects

Learning Based Opitcal Flow Estimation

ADVISOR: PROF. TRUONG NGUYEN — *Aug. 2017 - present*

- Proposed a deep learning based optical flow algorithm uses cue from previous frames
- Applied pyramid network structure for performance boost

Multiview 3D Reconstruction

ADVISOR: PROF. TRUONG NGUYEN, PROF. MANMOHAN CHANDRAKER — *Jan. 2017 - Jul. 2017*

- Implemented point cloud based 3D reconstruction using patch matching
- Implemented voxel based 3D reconstruction using visual hull

View Synthesis for Calibrated Cameras

Advisor: Prof. Truong Nguyen — *Sep. 2016 - Jan. 2017*

- Worked on developing image-based rendering algorithm for view synthesis problem
- Proposed novel approach for occlusion filling using hierarchical clustering
- Achieved top performance in Middlebury Stereo and Microsoft Multiview Dataset

Human Gestures Recognition with Extremely Low Resolution Visual Data

Advisor: Prof. Janusz Konrad, Prof. Prakash Ishwar — *Feb. 2014 - Jun. 2015*

- Proposed novel algorithm for gestures recognition using extremely low resolution visual data
- Using 5 cameras at 10×10 resolution, the proposed algorithm achieved $\sim 80\%$ recognition accuracy on synthetic data and $\sim 70\%$ accuracy on real data (IXMAS dataset); 10 different gestures being tested (dataset)
- Built smart environment capable of recognizing 3 gestures with 6 single pixel luminance sensors and proposed algorithm

Music Recognition

Advisor: Prof. Hamid Nawab — *Sep. 2013 - Dec. 2013*

- Developed music recognition algorithm based spectrogram analysis learning

Experience

University of California, San Diego — *La Jolla, CA*

Graduate Student Researcher — *Sep. 2015 - present*

- Currently working on deep learning based optical flow estimation algorithm
- Developed a view synthesis algorithm with robust occlusion filling method
- Worked on multiview 3D reconstructions using point cloud and visual hull
- Worked on stereo panoramic image generation for VR headset

Smart Lighting Engineering Research Center, Boston University — *Boston, MA*

Research Assistant — *Jun. 2014 - Jun. 2015*

- Proposed novel algorithm for human gestures recognition with extremely low resolution visual data
- Built a smart environment with low resolution sensors and applied with the proposed activity recognition algorithm
- Built a Unity-based test-bed which read human motion data from Microsoft Kinect to animate the virtual avatar

Stellar Services — *Shanghai, China*

Software Developer — *Feb. 2013 - Aug. 2013*

- Worked as front-end developer
- Worked on SOLIS system

IBM — *Shanghai, China*

System Support Representative — *Jul. 2012 - Dec. 2012*

- On site server installation and maintenance
- IBM AIX operating system maintenance for IBM Power 700 series servers

Skills

Programming Language	C++, Python, Matlab, C#, XMAL
Deep Learning	PyTorch, TensorFlow, Caffe
Libs & API	OpenCV, CUDA, OpenGL
Software	Unity, Unreal, Blender
Operating System	Linux, Windows