DANDAN SHAN

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EDUCATION

University of Michigan - Ann Arbor, MI, USA *Aug 2020 -*
PhD, CSE

University of Michigan - Ann Arbor, MI, USA *Aug 2018 - May 2020*
Master of Engineering, ECE

Soochow University, Jiangsu, China *Sep 2014 - Jun 2018*
Bachelor of Engineering, Software Engineering

University of Pennsylvania, PA, USA *Jul 2016 - Aug 2016*
Global Leadership English Language and US Culture Program

PUBLICATION

"Understanding Human Hands in Contact at Internet Scale", Dandan Shan, Jiaqi Geng*, Michelle Shu*, David Fouhey, CVPR 2020 (Oral).

RESEARCH EXPERIENCE

Understanding Human Hands in Contact at Internet Scale Jan 2019 - Present
CVPR2020 (Oral)
Graduate Research Assistant, CSE, University of Michigan *Advisor: David Fouhey*

- Built a large-scale YouTube video dataset (100 Days of Hands) of hands in contact with objects with learning systems consisting of 131 days of footage
- Trained a multi-task hand-object detector with custom data and did final evaluation
- Built a intelligent hand system that integrates full hand state prediction, a pre-trained MANO-based 3D hand mesh reconstruction model and a mesh quality classifier together
- Implemented the model to predict hand future location at pixel-level with Dilated ResNet
- Built the model to predict the hand grasp with only a shown object

Gaze Estimation Feb 2016 - Sep 2016
(Independent) Academic Innovation Research Project, Soochow University *Advisor: Yong Sun*

- Designed a gaze estimator by applying an uncontrained face detector and eye detector, refining eye region with template matching and using Sobel operator to locate pupil
- Improved accuracy by applying "libfacedetection" library to calculate the inclined angle of the face

WORK EXPERIENCE

CalmCar Vision System Co., Suzhou, China Aug 2017 - May 2018
System Development Intern *Mentor: Shiqing Cheng*

- Developed a real-time traffic lights state recognition system based on mono camera using neural networks for the **A**dvanced **D**river **A**ssistance **S**ystem which already used in practice in a Level-4 (High Automation) ADAS in cooperation with SAIC Motor Co. Ltd.
- Implemented functions of CAN-file parser for Offline Calmcar Control Center

TEACHING EXPERIENCE

AI4ALL Summer Program, University of Michigan Jul 2020
Project Instructor

· Taught basic image processing methods, like threading and filtering, and guided high school students to do final projects

PROJECT EXPERIENCE

3D Motion Capture with the Built-in Camera Computer Vision Course Project

· Collaborated to re-implemented VNet to do 3D pose estimation with a RGB camera
· Assisted with render stereo skeleton using Unity3D

Parkinson's Disease Classification using Neural Networks AI Application Course Project

· Prepared neat brain MRI data via brain extraction and brain calibration
· Built classifier on concatenated Inception-v3 feature of 2 layers from brain MRI which outperforms 3D-CNN model

Biometrics Program National University of Singapore

· Implemented PCA and LDA feature extractors from scratch, built PCA-based and LDA-based identifiers and evaluated the identifiers using Confusion Matrix
· Implemented face recognition with PCA and LDA respectively

SERVICE AND VOLUNTARY

Coordinator, Computer Vision Reading Group, University of Michigan	Aug 2020 - Present
Webmaster, Ensemble of CSE Ladies, University of Michigan	Aug 2020 - Present
Mentor, Ensemble of CSE Ladies, University of Michigan	Sep 2019 - Dec 2019
Web designer and maintainer, Vision@UMich offical webpage	Sep 2019 - Present
Volunteer, AI Symposium at the University of Michigan	Oct 2019
Web maintainer, TEDxSuzhou official webpage	Sep 2016 - Jan 2017
Social Investigation on Children's Education Status in Ningxia Hui Autonomous Region	Jul 2015

SKILLS

Skilled in using C, C++, Java, Python, Pytorch, Tensorflow
Skilled in Image Processing, Computer Vision, Machine Learning, Web Design

HONORS AND SCHOLARSHIP

Outstanding graduate of Soochow University	Jun 2018
Excellent Thesis of Soochow University	Jun 2018
Grand Prize Excellent Student Scholarship	Oct 2017
Merit Student of Soochow University	Oct 2017
Innovation Award of Soochow University	Oct 2017
Overseas Exchange Scholarship of Soochow University **twice**	2016, 2017
Special Award for Social Work of Soochow University **3 times**	2015, 2016, 2017
Comprehensive Performance Awards of Soochow University **3 times**	2015, 2016, 2017
1st Prize in National English Competition for College Students	May 2017
1st Prize of Excellent Student Scholarship **twice**	2015, 2016
Jiangsu Provincial Government Scholarship	Sep 2016
1st Prize in "Creation is unlimited" Social Practice Competition of Soochow University	May 2015