

# HAO WANG

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Division of Production Systems, Department of Industrial and Materials Science

Chalmers University of Technology

## EDUCATION

**Chalmers University of Technology**

*Ph.D. student*

2021 - Current

*Gothenburg, Sweden*

**The University of Edinburgh**

*MSc with Distinction in Informatics*

2018 - 2019

*Edinburgh, UK*

**Beijing University of Posts and Telecommunications**

*B.Eng. in Telecommunication Engineering*

2014 - 2018

*Beijing, China*

## PUBLICATION

### *Conference*

**Face Forgery Detection by 3D Decomposition**

Xiangyu Zhu\*, Hao Wang\*, Hongyan Fei, Zhen Lei, Stan Z. Li (\*Equal contribution)

CVPR 2021 (Oral)

**Beyond 3DMM Space: Towards Fine-grained 3D Face Reconstruction**

Xiangyu Zhu, Fan Yang, Di Huang, Chang Yu, Hao Wang, Jianzhu Guo, Zhen Lei, Stan Z. Li

ECCV 2020

## ACADEMIC PROJECTS

**Digital Face Manipulation Detection**

*CVPR 2021 (Oral)*

Mar. 2020 - Nov. 2020

- Introduced 3D decomposition into forgery detection
- Constructed facial detail to amplify subtle artifacts
- Proposed a two-stream FD<sup>2</sup>Net to fuse the clues from original images and facial details
- Introduced a supervised attention module to highlight the discriminative region

**Fine-grained 3D Face Reconstruction**

*ECCV 2020*

Oct. 2019 - Mar. 2020

- Proposed a novel solution to construct large-scale fine-grained 3D data from RGB-D images
- Constructed a new dataset, Fine-Grained 3D face (FG3D), with 200k samples for training
- Proposed a Fine-Grained reconstruction Network (FGNet) concentrating on shape modification in UV space

**Gender Identification from 3D Facial Surface Model**

*Dissertation for Master's degree*

Feb. 2019 - Aug. 2019

- Proposed a novel method on 3D facial gender identification with machine learning & conformal mapping
- Evaluated the proposed method and obtained competitive performance (accuracy over 88%)

**Action Recognition Model with First-Person Videos**

Jan. 2019 - Mar. 2019

- Evaluated third-person action recognition methods with first-person datasets
- Compared the differences between the third and first-person methods
- Proposed and studied a new model combining MobileNet and Two-stream Pyramid

**Image Super-Resolution with Convolutional Neural Network**

*Dissertation for Bachelor's degree*

Dec. 2017 - June 2018

- Realized the subpixel-based image super-resolution method with pixel shuffle
- Tested the model on both image and video datasets

## RESEARCH EXPERIENCE

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### **National Laboratory of Pattern Recognition, CASIA**

Oct. 2019 - June 2021

*Research Intern*

*Beijing, China*

- Projects: Fine-grained 3D face reconstruction; Face forgery detection; Face anti-spoofing

### **Next Generation Internet Research Center, BUPT**

May 2017 - Oct. 2017

*Undergraduate Research Assistant*

*Beijing, China*

- Projects: Optimization on DASH-based video service in high-speed railway networks with stochastic methods; Network flow variation detection with mobile crowd sensing

## ACADEMIC SERVICE

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**Reviewer:** ICME

## SKILLS

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**Programming Languages:** Python, MATLAB, C/C++, Java, Go, VHDL, Verilog, Assembly Language

**Tools:** PyTorch, Tensorflow, OpenCV, Dlib

**Others:** Linux, Git, SQL,  $\text{\LaTeX}$ , FPGA, Arduino, Raspberry Pi