

# HAO WANG

haowang7308@gmail.com  $\diamond$  <https://hwang7308.github.io>

Division of Production Systems, Department of Industrial and Materials Science  
Chalmers University of Technology

## EDUCATION

### Chalmers University of Technology

*Ph.D. student*

Supervisor: Prof. Åsa Fasth Berglund, Prof. Johan Stahre

2021 - Current

Gothenburg, Sweden

### The University of Edinburgh

*MSc with Distinction in Informatics*

Supervisor: Prof. Robert B. Fisher

2018 - 2019

Edinburgh, UK

### Beijing University of Posts and Telecommunications

*B.Eng. in Telecommunication Engineering*

Supervisor: Prof. Aidong Men

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 (Accept - 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 (Accept - 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

---

### National Laboratory of Pattern Recognition, CASIA

*Research Intern*

Oct. 2019 - June 2021

*Beijing, China*

- Advisors: Prof. Xiangyu Zhu, Prof. Zhen Lei
- Projects: Fine-grained 3D face reconstruction; Face forgery detection; Face anti-spoofing

### Next Generation Internet Research Center, BUPT

*Undergraduate Research Assistant*

May 2017 - Oct. 2017

*Beijing, China*

- Advisor: Prof. Yang Liu
- 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

---

Reviewer: ICME

## SKILLS

---

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

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

**Others:** Linux, Git, SQL, L<sup>A</sup>T<sub>E</sub>X, FPGA, Arduino, Raspberry Pi

## REFERENCES

---

### Robert B. Fisher

*Professor*

The University of Edinburgh  
rbf@inf.ed.ac.uk

### Zhen Lei

*Professor*

Chinese Academy of Sciences  
zlei@nlpr.ia.ac.cn

### Zhuqing Jiang

*Assistant Professor*

Beijing University of Posts and Telecommunications  
jiangzhuqing@bupt.edu.cn