# HAO WANG

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National Laboratory of Pattern Recognition

Institute of Automation, Chinese Academy of Sciences

## EDUCATION

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|---|---|
| **The University of Edinburgh** | 2018 - 2019 |
| *MSc with Distinction in Informatics* | *Edinburgh, UK* |
| Supervisor: Prof. Robert B. Fisher | |

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| **Beijing University of Posts and Telecommunications** | 2014 - 2018 |
| *B.Eng. in Telecommunication Engineering* | *Beijing, China* |
| Supervisor: Prof. Aidong Men | |

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| **University of Skövde** | Sept. 2016 - Jan. 2017 |
| *Exchange Student in informatics* | *Skövde, Sweden* |
| Concentration: Operating Systems, System Administration | |

## RESEARCH INTERESTS

My research interests lie in the general digital image analysis, assisted by the advanced computer vision techniques, especially in 3D vision & graphics scenario.

## PUBLICATION

### Conference

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| **Beyond 3DMM Space: Towards Fine-grained 3D Face Reconstruction** | ECCV 2020 |

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

### Pre-print

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| **Face Forgery Detection by 3D Decomposition** | arXiv |

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

## ACADEMIC PROJECTS

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| **Digital Face Manipulation Detection** | Mar. 2020 - Nov. 2020 |

- · Proposed to analyze fake face images with 3D decomposition
- · Proposed a novel facial forgery detection with facial detail
- · Introduced a supervised Attention and a multi-modality solution

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| **Fine-grained 3D Face Reconstruction** | Oct. 2019 - Mar. 2020 |

*ECCV 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

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| **Gender Identification from 3D Facial Surface Model** | Feb. 2019 - Aug. 2019 |

*Dissertation for Master's degree*

- · 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%)

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| **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

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| **Image Super-Resolution with Convolutional Neural Network** | Dec. 2017 - June 2018 |

*Dissertation for Bachelor's degree*

· 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**　　　　　　　　　　Oct. 2019 - Present
*Research Intern*　　　　　　　　　　　　　　　　　　　　　　　　　　　*Beijing, China*

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

**Next Generation Internet Research Center, BUPT**　　　　　　　　　　May 2017 - Oct. 2017
*Undergraduate Research Assistant*　　　　　　　　　　　　　　　　　　*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

## SKILLS

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

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

**Others**: Linux, Git, SQL, LaTeX, FPGA, Arduino, Raspberry Pi

## REFERENCES

| **Robert B. Fisher** | **Xiangyu Zhu** | **Zhuqing Jiang** |
|---|---|---|
| *Professor* | *Associate Professor* | *Assistant Professor* |
| The University of Edinburgh | Chinese Academy of Sciences | Beijing University of Posts and Telecommunications |
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