

# CHONGYANG WANG

## University College London | PhD Candidate

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Chongyang Wang is a PhD candidate at the UCL interaction centre under the supervision of Prof. Nadia Berthouze and Dr. Nic Lane. Prof. Amanda Williams is acting as the honorary supervisor who help enrich the theoretical background from a clinical psychology perspective.

His main research focus is on ubiquitous and affective computing for healthcare applications. He was awarded two prestigious scholarships from UCL to carry out his PhD studies on the topic of developing new body sensing technology to support chronic pain physical rehabilitation.

**Ubiquitous computing, Affective computing, AI for healthcare**

## EDUCATION

**University College London** | United Kingdom | 2017-2021

Ph.D. in Affective and Ubiquitous Computing (Writing-up).

Supervisor : Prof. Nadia Bianchi-Berthouze (UCL) and Dr. Nicholas D. Lane (University of Cambridge).

First-year and upgrade Viva passed.

**Southwest University** | China | 2013 - 2017

B.E. in Electronic and Information Engineering (Awarded).

Supervisor : Prof. Tong Chen.

Final average academic grade ranked 2nd in the major with 82 students in total.

GPA:3.79/4.

## RESEARCH PROJECTS

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| 12.2021 | <b>Protective Behavior Detection in Continuous Data of Functional Activities for the Rehabilitation of People with Chronic Pain   EU Horizon 2020 FET PROACTIVE Project (Grant agreement : 824160, EnTimeMent)   UCL   PhD Student</b>   |
| 09.2017 | <ul style="list-style-type: none"><li>&gt; Design novel deep learning methods considering the biomechanics of full-body IMU (skeleton) data and the relationship between the affect-influenced movement behavior and activity type.</li><li>&gt; Design novel approach for knowledge learning from multiple domain-expert annotators.</li><li>&gt; Design novel data representation for IMU and surface EMG data.</li><li>&gt; Tackle the influence of the small and imbalanced dataset.</li><li>&gt; Publish papers at IMWUT, Ubicomp/ISWC, ACM HEALTH.</li></ul> |
| 03.2021 | <b>Spontaneous Facial Micro-Expression Recognition with Deep Learning   National Natural Science Foundation of China (61301297)   SWU, Chinese Academy of Science   Research Assistant</b>   |
| 04.2016 | <ul style="list-style-type: none"><li>&gt; Designed novel deep learning methods to improve the recognition of micro-expression, by considering the nature of it, e.g., the low-intensity and short-period.</li><li>&gt; Previous studies we proposed were evaluated on the CASME, CASME II, SMIC and SAMM datasets with significantly improved recognition accuracy.</li><li>&gt; Papers published at Frontiers in Psychology, Neurocomputing, ACII'19.</li></ul>  |
| 03.2016 | <b>Near-Infrared Face Identification with Deep Learning   National Natural Science Foundation of China (61301297/61472330)   SWU   Research Assistant</b>  |
| 09.2015 | <ul style="list-style-type: none"><li>&gt; Designed a new convolutional neural network structure based on GoogLeNet to conduct near-infrared face identification.</li><li>&gt; Tested the network on the CASIA NIR database under various conditions, compared our work with several state-of-the-art methods, improved the identification accuracy dramatically.</li><li>&gt; Paper published at Information.</li></ul>   |

## KEY PUBLICATIONS

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### Journal Papers

- [1] **Chongyang Wang**, Yuan Gao, Akhil Mathur, Nicholas D. Lane and Nadia Bianchi-Berthouze. "Leveraging Activity Recognition to Enable Protective Behavior Detection in Continuous Data". Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), accepted, arXiv:2011.01776, 2021.
- [2] **Chongyang Wang**, Temitayo A. Olugbade, Akhil Mathur, Amanda C. De C. Williams, Nicholas D. Lane, and Nadia Bianchi-Berthouze. "Chronic-Pain Protective Behavior Detection with Deep Learning". ACM Transactions on Computing for Healthcare (ACM HEALTH), accepted, arXiv:1902.08990, 2021.
- [3] Min Peng, **Chongyang Wang**, Yuan Gao, Tao Bi, Tong Chen, Yu Shi, Xiang-Dong Zhou. "Recognizing Micro-expression in Video Clip with Adaptive Key-frame Mining". IEEE Transactions on Multimedia, under review, arXiv : 2009.09179, 2021.
- [4] **Chongyang Wang**, Min Peng, Tao Bi, and Tong Chen. "Micro-Attention for Micro-Expression recognition". Neurocomputing, 410, 2020.
- [5] Min Peng, **Chongyang Wang**, Tong Chen, Guangyuan Liu, and Xiaolan Fu. "Dual temporal scale convolutional neural network for micro-expression recognition". Frontiers in Psychology, 8, 2017.
- [6] Min Peng, **Chongyang Wang**, Tong Chen, and Guangyuan Liu. "NIRFaceNet : A convolutional neural network for near-infrared face identification". Information, 7(4), 2016.

### Conference Papers

- [1] Gold, N. E., **Chongyang Wang**, Temitayo Olugbade, N. Berthouze, and A. Williams. "P[l]aying Attention : Multi-Modal, Multi-Temporal Music Control". International Conference on New Interfaces for Musical Expression (NIME), 2020. Poster presentation.
- [2] **Chongyang Wang**, Temitayo A. Olugbade, Akhil Mathur, Amanda C. De C. Williams, Nicholas D. Lane, and Nadia Bianchi-Berthouze. "Recurrent network based automatic detection of chronic pain protective behavior using MoCap and sEMG data." 23rd International Symposium on Wearable Computers (ISWC/UbiComp'19), ACM, 2019. **Oral presentation.**
- [3] **Chongyang Wang**, Peng, M., Olugbade, T. A., Lane, Nicholas. D., Williams, A. C. D. C., and Bianchi-Berthouze, Nadia. "Learning Bodily and Temporal Attention in Protective Movement Behavior Detection". 8th International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (ACIIW'19), IEEE, 2019. **Oral presentation.**
- [4] Min Peng, **Chongyang Wang**, Bi, Tao, Chen, Tong., and Zhou, X. "A Novel Apex-Time Network for Cross-Dataset Micro-Expression Recognition". 8th International Conference on Affective Computing and Intelligent Interaction (ACII'19), IEEE, 2019. Poster presentation.

 [Google Scholar](#)

## INTERNSHIPS

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VISITING SCHOLAR | AIRS | SHENZHEN, CN

03.2021 - 06.2021

 [AIRS](#)

Linux TensorFlow

VISITING STUDENT | SUJING'S GROUP, INSTITUTE OF PSYCHOLOGY, CHINESE ACADEMY OF SCIENCE | BEIJING, CN 09.2016 - 03.2017

 [Sujing Wang](#)

Linux OpenCV Caffe

VISITING STUDENT | DEPARTMENT OF BIOMEDICAL INFORMATICS , HARVARD MEDICAL SCHOOL | BOSTON, USA 08.2015 - 09.2015

 [HMS](#)

Matlab R

## ACADEMIC ACTIVITIES

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### Program Committee Member

- Journals : IMWUT, ACM Transactions on Intelligent Systems and Technology, IEEE Transactions on Multimedia, IEEE Transactions on Human-Machine Systems, Journal of Signal Processing Systems.
- Conferences : UbiComp'19/20/21, ACII'21, ICM'20, SmartCOMP'20 Industry Track, ACII'19 Workshops, PerCom'19 Industry Track.

### Organizer

Data chair of EmoPain Challenge 2019 (based in ACII'19), 2020 (based in FG'20).

### Invited Speaker

-'The Role of AI in Chronic-pain Management'

A Showcase for Hospital Authority (HA) of Hongkong, AIRS, 04 2021.

-‘Leveraging Activity Recognition to Enable Protective Behavior Detection in Continuous Data’  
AI Society Journal Club, UCL, 02 2021.

-‘From Facial Micro-Expression Recognition to Protective Movement Behavior Detection’  
Cyber Physical Systems Seminar, Department of Computer Science, University of Oxford, 12 2018.

## TEACHING EXPERIENCES

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### **Teaching Assistant** | 2017-2021

COMP0053, Affective Computing and Human Robot Interaction (postgraduate course) at UCL, Full time.  
PSYC0021, Affective Interaction (a postgraduate course) at UCL, Part time.

### **Supervision** | 2020 - 2021

Cen Guanting, MSc Project at UCL.

## AWARDS

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### **UCL ORS-GRS** | 2017-2021

UCL Overseas Research Scholarship and Graduate Research Scholarship, the full scholarship for postgraduate research student.

### **China National Scholarship** | 2016

The highest scholarship of China for the top 0.2% undergraduate students.

### **Honorable Mention** | 2016

The annual interdisciplinary contest in modeling, control number 52317.

### **The First-class Scholarship** | 2014, 2015

The highest scholarship of SWU for the undergraduate student.

## SKILLS

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<b>Language</b>	Toefl iBT 101 (writing 28, reading 26, listening 27, speaking 20).
<b>Sensors</b>	IMU, Surface EMG, Empatica bracelet, Myo EMG wristband.
<b>Coding</b>	Python (4 years), C (5 years), TensorFlow and Keras (3 years), $\text{\LaTeX}$ (4 years).