CHONGYANG **WANG**

University College London | Ph.D.

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Chongyang Wang obtained his Ph.D. from UCL interaction centre, where he worked with Prof. Nadia Berthouze and Dr. Nic Lane. Prof. Amanda Williams acted as the tertiary supervisor, and she contributed to the research from the perspective of clinical psychology. His research focus on ubiquitous and affective computing for intelligent healthcare. He was awarded two prestigious UCL scholarships to pursue his PhD studies on the multidisciplinary topic of developing novel body sensing technology to support chronic pain physical rehabilitation. He also has research experiences on AI for vision, language, and physiological signals.

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

EDUCATION

University College London | United Kingdom | 2017-2022
Ph.D. in Ubiquitous and Affective Computing (Awarded).
Supervisor : Prof. Nadia Bianchi-Berthouze (UCL, primary), Dr. Nicholas D. Lane (University of Cambridge, secondary), Prof. Amanda C. De C. Williams (UCL, tertiary).
Thesis : Protective Behavior Detection in Chronic Pain Rehabilitation : From Data Preprocessing to Learning Model.

Southwest University | China | 2013 - 2017
B.E. in Electronic and Information Engineering (Awarded).
Supervisor : Prof. Tong Chen.
GPA:3.79/4, ranked 2nd in the major with 82 students in total.

RESEARCH PROJECT

Present – 03.2021 | **Learning with Multiple Annotators without Objective Groundtruth & Efficient Video Question Answering** | **National Key R&D Program of China (2020YFB1313300)** | **AIRS, CUHK(SZ)** | **Visiting Scholar**

- Proposed a novel agreement learning framework to tackle the learning with multiple annotators, while the objective groundtruth is ambiguous to define.
- Modeled the uncertainty existed in annotations with a novel general agreement distribution and an agreement regression loss function, while improved the robustness of the framework.
- Collaborated on another project of efficient video question answering and heterogeneous multi-agent reinforcement learning.
- Published a paper at IJCAI'22, with one paper in submission and another paper under development.

06.2022 – 09.2017 | **Protective Behavior Detection in Continuous Data of Functional Activities for the Rehabilitation of People with Chronic Pain** | **UCL ORS-GRS, EU FET Proactive Programme H2020-EU.1.2.2 (Grant agreement 824160; EnTimeMent)** | **UCL** | **PhD Student**

- Proposed novel deep learning models considering the biomechanics of full-body IMU (skeleton) data and the relation between the affect-influenced movement behavior and activity types.
- Studied data preprocessing methods for IMU and surface EMG data.
- Tackled the influence of the small and imbalanced dataset.
- Published papers at ACII'22, IMWUT/Ubicomp'21, ACM HEALTH, ISWC/Ubicomp'19.

03.2021 – 04.2016 | **Spontaneous Facial Micro-Expression Recognition with Deep Learning** | **National Natural Science Foundation of China (61301297)** | **SWU, Institute of Psychology, Chinese Academy of Science** | **Research Assistant**

- Proposed novel deep learning methods to improve the recognition of micro-expression, by considering the nature of it, e.g., the sparsity in its spatial and temporal distributions.
- Evaluated the proposed methods on CASME, CASME II, SMIC, and SAMM datasets, and achieved significantly improved recognition accuracy.
- Published papers at Frontiers in Psychology, Neurocomputing, ACII'19.

03.2016 – 09.2015 | **Near-Infrared Face Identification with Deep Learning** | National Natural Science Foundation of China (61301297/61472330) | SWU | Research Assistant

- Proposed a novel convolutional neural network structure based on GoogLeNet to conduct near-infrared face identification.
- 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.
- Published a paper at Information.

KEY PUBLICATION

Journal

[1] **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), 2, 3, 2021.
[2] **Chongyang Wang**, Min Peng, Tao Bi, and Tong Chen. "Micro-Attention for Micro-Expression recognition". Neurocomputing, 410, 2020. JCR Q1, IF 5.719.
[3] 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. JCR Q2, IF 2.99.
[4] Min Peng, **Chongyang Wang***, Tong Chen, and Guangyuan Liu. "NIRFaceNet : A convolutional neural network for near-infrared face identification". Information, 7(4), 2016. JCR Q3, IF 2.38.

Conference

[1]Guanting Cen, **Chongyang Wang***, Temitayo A. Olugbade, Amanda C. De C. Williams, Nadia Bianchi-Berthouze. "Exploring Multimodal Fusion for Continuous Protective Behavior Detection." 10th International Conference on Affective Computing and Intelligent Interaction (ACII'22), 2022.
[2]Min Peng, **Chongyang Wang***, Yuan Gao, Xiangdong Zhou. "Multilevel Hierarchical Network with Multiscale Sampling for Video Question Answering." 31st International Joint Conference on Artificial Intelligence (IJCAI'22), 2022. **Oral presentation**. **CCF A**.
[3]**Chongyang Wang**, Yuan Gao, Akhil Mathur, Amanda C. De C. Williams, 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/Ubicomp'21), 5, 2, 2021. **Oral presentation**. **CCF A**.
[4] 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.
[5] **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), 2019. **Oral presentation**. **CCF A**.
[6] **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), 2019. **Oral presentation**.
[7] 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), 2019. Poster presentation.

Arxiv

[1] **Chongyang Wang**, Yuan Gao, Chenyou Fan, Junjie Hu, Tin Lun Lam, Nicholas D. Lane and Nadia Bianchi-Berthouze. " Learn2Agree : Fitting with Multiple Annotators without Objective Ground Truth." arXiv : 2109.03596, 2021.
[2] 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". arXiv : 2009.09179, 2021.

Google scholar (citations : >400, h-index : 10, i10-index : 11) (* denotes equal contribution)

INTERNSHIP

AIRS | Visiting Scholar | Shenzhen, CN 03.2021 - 06.2021

AIRS

Linux | Tensorflow

Sujing's Group, Institute of Psychology, Chinese Academy of Science | Student Intern | Beijing, CN 09.2016 - 03.2017

Sujing Wang

Linux | OpenCV | Caffe

Department of Biomedical Informatics , Harvard Medical School | **Student Intern** | **Boston, USA** 08.2015 - 09.2015

HMS

Matlab R

ACADEMIC ACTIVITY

Reviewer

-Journals : Nature Medicine, 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'22/21/19, ICMI'20/21, SmartCOMP'20, Mobicomp'19, PerCom'19.

Organizer

Data chair of EmoPain Challenge 2019 (based in ACII'19), 2020 (based in FG'20), 2021 (based in ACII'21).

Invited speaker

'The Interactive Development of AI and the Research on Chronic Pain'
Seminar, UM-SJTU Joint Institute, 01 2022.

'Ubiquitous Human Behavior Sensing for Intelligent Chronic Pain Rehabilitation'
'Nursing + X' Forum, School of Nursing, Shanghai Jiao Tong University, 10 2021.

'The Role of AI in Chronic-pain Management'
Showcase, Hospital Authority (HA) of Hongkong, AIRS, 04 2021.

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

'From Facial Micro-Expression Recognition to Protective Movement Behavior Detection'
Seminar, Department of Computer Science, University of Oxford, 12 2018.

TEACHING EXPERIENCE

Teaching assistant | UCL | 2017-2021
COMP0053, Affective Computing and Human Robot Interaction (postgraduate course), full time.
PSYC0021, Affective Interaction (postgraduate course), part time.

Thesis supervision | UCL | 2020 - 2021
Cen Guanting, M.Sc. project, awarded with Distinction

AWARD

ORS-GRS | UCL | 2017-2021
UCL Overseas Research Scholarship and Graduate Research Scholarship, the full scholarship for postgraduate research students.

China National Scholarship | SWU | 2016
The highest scholarship of China for the top 0.2% undergraduate students.

Honorable Mention | SWU | 2016
The annual interdisciplinary contest in modeling, control number 52317.

The First-class Scholarship | SWU | 2014, 2015
The highest scholarship of SWU for the undergraduate student.

SKILL

Language TOEFL iBT 101 (writing 28, reading 26, listening 27, speaking 20).

Sensors IMU, sEMG, Empatica bracelet, Myo EMG armband, Notch motion capture, MS Kinect.

Coding Python, C, TensorFlow, Keras, LaTeX.