Xiaolong ZHU

CONTACT INFORMATION	Parametrix.ai 2405, Bld 10A, Shenzhenwan Science & Tech Ecological Garden Nanshan, Shenzhen	*Mobile:* +86–14714930403 *Skype:* lucienzhu@hotmail.com *E-mail:* lucienxlzhu@gmail.com *WWW:* xiaolongzhu.org

RESEARCH INTERESTS

AI and Games, including *Bots*, *Gameplay*, *Content Generation*, *Narratives*
Computer Vision, including *Image Classification*, *Object Detection*, *Semantic Labelling*, *Landmark Localization*;
Machine Learning, including *Random Forest*, *Support Vector Machines*, *Deep Learning* and *Reinforcement Learning*;
Edge Computing, including *Camera Hardware*, *CPU/GPU/NPU*, *Heterogeneous Computing*;
Human-Computer Interaction, including *User Study*, *Prototyping*, *Gestural Interface*.

EDUCATION

The University of Hong Kong,   Hong Kong SAR, China

Ph.D., *Computer Science*,   **September 2010 - January 2016**
- Thesis Title: Hand Detection and Hand Shape and Posture Analysis in Images.
- Advisor: Dr. Kenneth K. Y. Wong

Peking University,   Beijing, China

B.S., *Intelligence Science and Technology*   **September 2006 - June 2010**
- Thesis Title: Segmentation and Classification of Range Image.
- *Excellent Undergraduate Thesis Award*.
- Advisor: Dr. Huijing Zhao

EXPERIENCE

Parametrix.ai,   Shenzhen, China

Explorer in the founding team   **Mar 2019 - Present**
- Business solutions and AI innovations;
- Platforms and algorithms iterations.

Tencent TEG,   Shenzhen, China

Senior R&D Engineer, Tech Lead   **Aug 2016 - Mar 2019**
- Led to deploy real-time face detection, landmarks and deformation on mobile phones;
- Developed and deployed real-time human pose estimation on iOS/Android phones;
- Helped to develop reinforcement learning for board game AI;
- Deployed real-time live video style transfer on iOS/Android phones;
- Developed an algorithm for real-time video style transfer;
- Developed several prototypes for AI Lab Vision Team.

R&D Engineer   **Jul 2015 - Aug 2016**
- Implemented CTC model for end-to-end speech recognition, collaborating with WeChat Speech Team;
- Worked on prototyping news recommendation using DNN model;
- Implemented a prototype of service robot based on ROS/Turtlebot.

Lenovo IVC Lab,   Hong Kong SAR, China

Research Intern   **June 2013 - August 2013**

- Innovated new ways for image searching.
- Designed a prototype of touch-based image retrieval system and demonstrated it to CTO.

Microsoft Research Asia,   Beijing, China

Research Intern   **June 2012 - September 2012**

- Learned HCI workflow of problem solving;
- Designed visual feedback for in-air gesture recognition.

Youdao.com,   Beijing, China

Software Engineer Intern   **June 2010 - August 2010**

- Coded web front-end of a Location-based Social Network Service;
- Cooperated with web designer.

Peking University,   Beijing, China

Undergraduate Research Assistant   **September 2008 - June 2010**

- Participated in the *POSS* project, in 3D VCR Lab;
- Analyzed range data using computer vision methods.

PUBLICATIONS   [Refereed Conference Papers]

1. Haozhi Huang, Hao Wang, Wenhan Luo, Lin Ma, Wenhao Jiang, **Xiaolong Zhu**, Zhifeng Li, and Wei Liu. Real-Time Neural Style Transfer for Videos. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017.

2. **Xiaolong Zhu**, Wei Liu, Xuhui Jia and Kwan-Yee K. Wong. A Two-Stage Detector for Hand Detection in Ego-Centric Videos. *Winter Conference on Applications of Computer Vision (WACV)*, 2016.

3. **Xiaolong Zhu**, Xuhui Jia and Kwan-Yee K. Wong. Pixel-Level Hand Detection with Shape-aware Structured Forests. *Asian Conference on Computer Vision (ACCV)*, 2014.

4. **Xiaolong Zhu**, Ruoxin Sang, Xuhui Jia and Kwan-Yee K. Wong. A Hand Shape Recognizer from Simple Sketches. *International Conference on Image and Vision Computing New Zealand (IVCNZ)*, 2013.

5. Xuhui Jia, **Xiaolong Zhu**, Angran Lin and Kwok-Ping Chan. Face Alignment using Structured Random Regressors Combined with Statistical Shape Model Fitting. *International Conference on Image and Vision Computing New Zealand (IVCNZ)*, 2013.

6. **Xiaolong Zhu**, Kwan-Yee K. Wong. Single-Frame Hand Gesture Recognition Using Color and Depth Kernel Descriptors. *IEEE International Conference on Pattern Recognition (ICPR)*, 2012.

7. Zhihu Chen, Kwan-Yee K. Wong, Yasuyuki Matsushita, **Xiaolong Zhu**, Miaomiao Liu. Self-Calibrating Depth from Refraction. *IEEE International Conference on Computer Vision (ICCV)*, 2011.

8. **Xiaolong Zhu**, Huijing Zhao, Yiming Liu, Yipu Zhao, Hongbin Zha. Segmentation and Classification of Range Image from an Intelligent Vehicle in Urban Environment. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2010.

9. Huijing Zhao, Yiming Liu, **Xiaolong Zhu**, Yipu Zhao, Hongbin Zha. Scene Understanding in a Large Dynamic Environment through a Laser-based Sensing. *IEEE International Conference on Robotics and Automation (ICRA)*, 2010.

[Journal Papers]

1. **Xiaolong Zhu**, Xuhui Jia, Kwan-Yee K. Wong. Structured Forests for Pixel-level Hand Detection and Hand Part Labelling. *Computer Vision and Image Understanding (CVIU)*, 2015.

2. Zhihu Chen, Kwan-Yee K. Wong, Yasuyuki Matsushita, **Xiaolong Zhu**. Depth from Refraction Using a Transparent Medium with Unknown Pose and Refractive Index. *International Journal of Computer Vision (IJCV)*, 2012.

PATENTS

[In English]

1. Training method and device of neural network model for image processing. 2017-03-08. CN-108304755-B

2. Image processing method and device, and storage medium . 2017-03-29. WO-2018177237-A1

3. Camera orientation tracking method and apparatus, device, and system . 2018-05-22. WO-2019223468-A1

4. Video editing method and apparatus, device, and storage medium . 2019-03-21. WO-2020187086-A1

5. Method for training posture recognition model, and image recognition method and apparatus . 2019-04-12. WO-2020207281-A1

6. EMS memory management process, device and storage medium . 2018-01-23. CN-108304265-A

7. Augmented reality processing method, object recognition method, and related apparatus . 2017-12-13. WO-2019114696-A1

8. Neural network model deployment method, prediction method, and apparatus . 2017-12-13. WO-2019114517-A1

9. Method and apparatus for recognizing postures of multiple persons, electronic device, and storage medium . 2018-10-30. WO-2020088433-A1

10. Action recognition method and apparatus, and human-machine interaction method and apparatus . 2019-04-26. WO-2020216116-A1

11. Video image processing method and device. 2017-12-08. CN-109905590-B

12. Method and device for video data processing and storage medium. 2018-07-04. WO-2020007183-A1

13. Method and apparatus for generating music. 2017-09-30. WO-2019062716-A1

14. Floor monitoring method, electronic device and computer storage medium for use when robot riding elevator . 2016-05-05. WO-2017190666-A1

15. Sight line tracking model training method, and sight line tracking method and device . 2019-04-24. WO-2020216054-A1

16. Prospect data generation and application methods, related apparatus and system . 2019-04-12. WO-2020207203-A1

17. Image recognition method and device, electronic apparatus, and readable storage medium . 2017-12-14. WO-2019114726-A1

18. A kind of Processing with Neural Network method, apparatus, equipment and medium . 2019-05-09. CN-110163345-A

19. A kind of generation method and device of audio-frequency information. 2017-11-16. CN-109801618-A

20. Image processing method and related device. 2017-12-11. CN-109903291-B

21. Facial expression synthesis method and apparatus, electronic device, and storage medium . 2017-07-31. WO-2019024751-A1

22. Data sampling method and device, computer equipment and storage medium . 2021-03-11. CN-113032621-A

23. Virtual object control method, virtual object control device, virtual object model training method, virtual object model training device and computer equipment . 2021-03-08. CN-112933605-A

24. Video frame data sampling method and device, computer equipment and storage medium . 2021-02-24. CN-112925949-A

25. Intelligent agent control method and device, computer equipment and storage medium . 2021-02-23. CN-112905013-A

26. Model training method, model using method, computer device and storage medium . 2020-06-03. CN-111841018-A

27. Model training method, model calling equipment and readable storage medium . 2019-09-26. CN-110782004-A

28. Interactive task control method and device, storage medium and computer equipment . 2019-09-20. CN-110639208-A

29. A kind of image processing method, device and server, storage medium . 2019-05-09. CN-110163268-A

30. A kind of generation method and device of the rhymed lyrics. 2017-09-30. CN-110019919-A

31. A kind of method and relevant device of image recognition. 2017-09-15. CN-109508595-A

TEACHING **The University of Hong Kong**, Hong Kong SAR, China

Teaching Assistant **September 2010 - May 2014**

- Assisted Dr. Kenneth K.Y. Wong in Computer Vision;
- Assisted Dr. Kenneth K.Y. Wong in Computer Programming and Applications;
- Assisted Dr. Loretta Yi-King Choi in Topic in Computer Science: Visual Analysis.
- Assisted Dr. Kenneth K.Y. Wong in Computer Vision;
- Assisted Dr. Chun Kit Chui in Computer Programming and Applications;
- Assisted Dr. Kenneth K.Y. Wong in Computer Programming and Applications;

TALKS
- Mobile AI Development on Arm Platform. Arm Developers Global Summit. in *Chinese*. 2018;
- Deploying AI on Mobile. Tencent HKU recruitment talk. 2018;
- Human Pose Estimation on Mobile. Tencent TLC. in *Chinese*. 2018;
- Panelist for LF DL session and Deep Learning Session. LC3 China. 2018;
- Learning Game of Go. Tencent AI Lab Academic Forum. in *Chinese*. 2018;

AWARDS	• Overseas High-Caliber Personnel (Level C) in Shenzhen, 2017-2023; • Tencent Excellent R&D of the Year 2018, 2018; • Tencent Technology Breakthrough of the Year 2017, 2017; • Studentship of the University of Hong Kong, 2010-2014; • Top 10 Undergraduate Thesis, School of EECS in Peking University, 2010; • Wusi Scholarship in Peking University, 2009; • Outstanding Volunteer in Beijing 2008 Olympic Games, 2008; • First Class Honor in China Physics Olympic Games, Gansu, 2006.
TECHNICAL SKILLS	• Programming in: Python, C/C++, Matlab, JavaScript/HTML/CSS; • Basic Experience in: Objective-C, Processing, UNIX Shell scripting; • Native Mandarin speaker, fluent in English, very little Japanese and Cantonese; • Operating Systems: Windows, Mac OS X.
SOCIAL ACTIVITIES	• TAC Member of LF Deep Learning Foundation, 2018-2019; • Member of Tencent Open Source Working Group, 2018-2019; • Co-founder of Tech Club of Tencent TEG, 2015-2016; • Member of Information Technology Committee, The University of Hong Kong, 2012-2014; • IT Officer of Postgraduate Association (PGSA) in The University of Hong Kong, 2011-2013; • Volunteer as Media Assistant for Journalists in Games of the XXIX Olympiad, 2008.