

Chuanbin Liu (刘传彬)



PERSONAL STATEMENT

My research interests span **Medical Image Analysis**, **Fine-grained Image Analysis** and **Weakly-supervised Learning**. The noteworthy research project of mine is applying Deep Learning into **Pediatric Orthopaedics**. I am skilled at image processing and deep learning **coding**, and experienced of **Linux server management**.

I am an enthusiastic and progressive man, and a reliable team leader.

CONTACT INFORMATION

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Homepage: <http://home.ustc.edu.cn/~lcb592/> **GitHub:** <https://github.com/liuboss1992>

EDUCATION

09/2015-Present **Doctor of Information and Communication Engineering**
University of Science and Technology of China (USTC)

09/2011-06/2015 **Bachelor of Applied Physics**
University of Science and Technology of China (USTC)

RESEARCH EXPERIENCES

- 09/2018-Present** ***Deep Learning for Fine-grained Image Analysis***
Independent Completor
- Propose a novel bidirectional attention-recognition model for **weakly-supervised** Fine-grained Object Classification.
One journal paper accepted by IEEE TMM.
One conference paper accepted by AAAI 2020.
Two patents accepted by CNIPA.
- 05/2018-Present** ***Deep Learning for Diagnosing Developmental Dysplasia of the Hip***
Project Leader
- Convert the detection of misshapen landmark to the **detection/segmentation** of the landmark's local neighborhood patch for diagnosing Developmental Dysplasia of the Hip.
One conference paper accepted by MICCAI 2019.
One journal paper submitted to IEEE TMI.
One patent accepted by CNIPA.
Research in use by Anhui Provincial Children's Hospital.
- 09/2017-Present** ***Deep Learning for Pediatric Bone Age Assessment***
Independent Completor
- Propose a novel **weakly-supervised learning** approach for Bone Age Assessment, which can discover and extract the discriminative bone parts **without human prior**.
One conference paper accepted by MICCAI 2019.
One conference paper submitted to MICCAI 2020.
One journal paper submitted to IEEE TMI.
One patent accepted by CNIPA.
Research in use by Anhui Provincial Children's Hospital.
- 09/2015-09/2017** ***Future Network Design based on Game Theory***

Project Participant

- Consider the network applications as **game players** driven by their best self-interest. A novel Media-attribute Switching is proposed with the idea of **Mechanism Design**.

One conference paper accepted by MMM2020 (oral talk).

07/2013-09/2014 ***Equipment Development for Particle Detection***

Independent Completer

- Design a **front-head software** for detecting magnetic flux of **nuclear fusion**.
- Design an **analog circuit preamplifier** for detecting neutron flux of **nuclear fission**.

VOLUNTEER & ASSISTANT EXPERIENCES

09/2014-07/2017 ***Teaching Assistant of Design Innovation***

- Teaching Assistant in **USTC Design Innovation Course** as well as **Stanford University Global Alliance for Redesign**. Master the skill of **project management, team collaboration**.

09/2012-01/2015 ***Volunteer Assistant of Psychotherapists***

- Assist the psychotherapist to **help the student with psychological problem**. Master the skill of **psychological counseling**.

PUBLICATIONS

- **Chuanbin Liu**, Hongtao Xie, Zheng-Jun Zha, Lingyun Yu, Zhineng Chen, Yongdong Zhang. Bidirectional Attention-Recognition Model for Fine-grained Object Classification[J]// *IEEE Transactions on Multimedia*
- **Chuanbin Liu**, Hongtao Xie, Zheng-Jun Zha, Lingfeng Ma, Lingyun Yu, Zhineng Chen, Yongdong Zhang. Filtration and Distillation: Enhancing Region Attention for Fine-Grained Visual Categorization [C]// *AAAI-20*
- **Chuanbin Liu**, Hongtao Xie, Yizhi Liu, Zheng-Jun Zha, Fanchao Lin, Yongdong Zhang. Extract Bone Parts without Human Prior: End-to-end Convolutional Neural Network for Pediatric Bone Age Assessment[C]// *MICCAI 2019*
- **Chuanbin Liu**, Hongtao Xie, Sicheng Zhang, Jun Sun, Yongdong Zhang. Misshapen Pelvis Landmark Detection by Spatial Local Correlation Mining for Diagnosing Developmental Dysplasia of the Hip[C]// *MICCAI 2019*
- **Chuanbin Liu**, Youliang Tian, Hongtao Xie. Law is Order: Protecting Multimedia Network Transmission by Game Theory and Mechanism Design[C]// *MMM 2020 (oral talk)*
- Fanchao Lin, **Chuanbin Liu**, Hongtao Xie, Zheng-Jun Zha, Yongdong Zhang. Semantic-Embedding and Shape-Aware U-Net for Ultrasound Eyeball Segmentation[C]// *ICME 2019*
- Hai Wu, Hongtao Xie, **Chuanbin Liu**, Sicheng Zhang, Jun Sun, Yongdong Zhang. CircleNet for Hip Landmark Detection[C]// *AAAI-20*
- Zihua Shang, Zilong Fu, **Chuanbin Liu**, Hongtao Xie, Yongdong Zhang. Potential of Attention Mechanism for Classification of Optical Coherence Tomography Images[C]// *VCIP 2018*
- (Under Review) **Chuanbin Liu**, Hongtao Xie, Zheng-Jun Zha, Yongdong Zhang. Discovering Regions of Interest Automatically with Weakly-supervised Learning for Pediatric Bone Age Assessment[J]// *IEEE Transactions on Medical Imaging*
- (Under Review) **Chuanbin Liu**, Hongtao Xie, Sicheng Zhang, Jun Sun, Yongdong Zhang. Misshapen Pelvis Landmark Detection with Local-Global Correlation Learning for Diagnosing Developmental Dysplasia of the Hip [J]// *IEEE Transactions on Medical Imaging*
- (Under Review) **Chuanbin Liu**, Hongtao Xie, Yunyan Yan, Yongdong Zhang. Learning Rich Attention for Pediatric Bone Age Assessment[C]// *MICCAI 2020*

HONORS & AWARDS

- 12/2019** Hua-Yu Foundation Scholarship (¥10000)
- 08/2019** MICCAI 2019 Graduate Student Travel Award (\$500)
- 07/2019** CVPR 2019 Contest on Mitosis Detection (3rd)
- 09/2016** Excellent Teaching Assistant Award
- 12/2013** Chung-Yao Chao Talent Students Scholarship (¥12000)