Yubo Wang

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EDUCATION

2022.01-Now **Ph.D. in Wireless Communications**

Department of Electronics, Aalborg University

Thesis Topic: Design and Implementation of Lightweight Deep Learning Models and Architectures

2018.09-2021.06 **MPhil in Computer Application Technology**

National Space Science Center, Chinese Academy of Sciences

Cumulative GPA: 3.7/4.00

Thesis Topic: Research and design of accelerated processing algorithms for satellite-based astronomical images

2014.09-2018.06 **Bachelor of Communication Engineering**

Dept. of Communication Engineering, Zhengzhou University

Cumulative GPA: 3.22/4.00, ranked 14%

Thesis Topic: Research and Implementation of Digital Modulation and Demodulation Technology Based on DSP

RESEARCH EXPERIENCE

Ming Shen's AI-RF Research Group, Aalborg University

Project:

2022-Now **Sensor Intelligence for Healthcare and Sports**

Participant of the project, cooperation with Aalborg University Hospital and Nationwide Children's Hospital(USA)

- Based on the collected NCH dataset, a deep learning model based on an attention mechanism and efficient redundant reconstruction convolution is proposed to classify pin site images based on their appearance.
- A novel few-shot learning framework based on the channel attention mechanism is proposed to address the problem of multiple types of medical datasets and small amounts of data.

2022 **DeepBone: Deep Learning Based Detection of Surgical Site Infections in Orthopaedic Patients**

Participant of the project, cooperation with Aalborg University Hospital

- Design and training of surgical site detection model, lightweight improvements to the model for automated real-time detection
- Development of a smartphone application to enable orthopaedic patients to monitor their surgical site at home

Changbin Xue's Research Group, University of Chinese Academy of Sciences

Project:

2019-Now **Research on the key technology of embedded high-performance microprocessors for intelligent edge-end requirements**

Participant of the project

- Research on acceleration of scientific data processing based on Arm Computer library
- Accelerating astronomical image subtraction algorithm based on CPU+GPU heterogeneous embedded platform

2019 **Research on Intelligent Management and Real-time Processing Technology of Mass Data**

Participant of the project

- Multi-dimensional data storage, preprocessing and standard format conversion for multi-source data
- Research on Multi-source Information Fusion Technology

Zhongyong Wang's Research Group, University of Zhengzhou University, Zhengzhou University.

Project*:*

2016-2018 **Research and Implementation of Digital Modulation and Demodulation Technology**

EXTRACURRICULAR EXPERIENCE AND HONORS

- First Prize of Postgraduate Scholarship of CAS (2018&2019&2020)
- The 10th "Certification Cup" Mathematical China Mathematical Modeling Network Challenge. (National Second Prize, National-Level; Captain; 2017)
- China Contemporary Undergraduate Mathematical Contest in Modeling. (Province First Prize, National-Level; Captain; 2016)
- The 3rd China "Internet +" University Students Innovation and Entrepreneurship Competition(School-Level Prize; Member; 2017)
- Second class academic scholarship of Zhengzhou University (2 Times, 2015&2016)
- Third class academic scholarship of Zhengzhou University (2017)

SKILLS

• **Theoretical knowledge**

■ Able to use Python well, familiar with common data structures and algorithms, and have experience in Linux development.

■ Proficient in the basic theory and methods of digital image processing and analysis. Understanding of algorithms related to recognition, detection, and semantic segmentation of images.

■ Understand the basic theory and methods of Heterogeneous Parallel Computing.

• **Lab techniques**

■ Familiar with classical machine learning algorithms and deep learning models, such as SVM, CNN, LSTM, Transformer, etc., have used frameworks such as Keras, Pytorch, etc., and understand basic parallel programming knowledge (OpenCL, CUDA)

■ Understanding of common digital image processing techniques and proficiency in using data processing tools such as opencv, numpy, pandas, etc.

■ Proficiency in target detection algorithms such as YOLO, Vision Transformer, etc.

■ Proficient in various spaces, channel attention mechanisms

• **Others**

■ Microsoft Office, Photoshop, Adobe Premiere.

PUBLICATION

1. **Yubo Wang**, F Marie, A Bafor, O Rahbek, C Iobst, S Kold and M Shen. " Attention-based Pin Site Image Classification in Orthopaedic Patients with External Fixators ", IEEE Journal of Biomedical and Health Information, Major review.
2. **Yubo Wang**, A Bafor, O Rahbek, C Iobst, S Kold and M Shen. "Attention channel weight-guided few-shot learning model for fine-grained classification of pin site infection ", IEEE Transactions on Biomedical Engineering, Writing completed.
3. **Yubo Wang**, M Shen. " A generalized attention information-based downsampling module and a channel information-based triple coordinated attention module for image tasks ", In Preparation.
4. Q. Chen, Y Zhang, F Jalili, Z Wang, Y Huang, **Y Wang** and M. Shen., "Robust Digital Signal Recovery for LEO Satellite Communications Subject to High SNR Variation and Transmitter Memory Effects," in IEEE Access, vol. 9, pp. 135803-135815, 2022, doi: 10.1109/ACCESS.2021.3117517.
5. Q. Chen, **Y. Wang**, Y. Arun, P. C. F. Eggers, M. H. Nielsen, Y. Zhang and M. Shen , "Efficient Detection of Rare Beacon Events in GEO Satellite Communication Systems using Deep Learning," 2021 IEEE MTT-S International Wireless Symposium (IWS), 2021
6. Mingjian Wang, **Yubo Wang**. Several conclusions about the general solutions of Riccati differential equations [J]. Journal ofXi'an University of Arts and Science (Natural Science Edition), 2018, 21(01):25-27+34.
7. Zhenyuan Dai, Qiquan Feng, **Yubo Wang.** Discussion on the optimal design of intelligent fire extinguishing robot system [J].Digital communication World, 2017(08):72+138.

Patent:
"A frequency domain astronomical image target detection method and system", **Yubo Wang**, Changbin Xue, li Zhou, 2021, No. CN113344765A