

# Zisong Wang

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## PROFILE

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- Master in computer science and technology (Grade 2021).
- Research direction: the fault detection of moving parts of machine tools.
- Rigorous logical thinking, good at research and analysis, proficient in academic writing, solid mathematical skills, with a sense of teamwork and experience in organizing scientific research work.
- Familiar with Python, Linux, LaTeX and Pytorch. Familiar with the basic deep learning network structure.

## EDUCATION

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### University of Chinese Academy of Sciences

09/2021-Current

Master of Computer Science and Technology | GPA:3.43/4.00

**Major courses:** Computer Algorithm Design and Analysis, Computer Architecture, Graph Theory and Network Algorithm, Machine Learning, Deep Learning, Image Processing and Computer Vision, Visual Information Learning and Analysis, Reinforcement Learning, Medical Image Analysis, Deep Learning and Natural Language Processing, etc.

### Jilin University

09/2016-06/2020

Bachelor of Mathematics and Applied Mathematics

**Major courses:** mathematical analysis, advanced algebra, graph theory, abstract algebra, probability theory and other basic courses in mathematics.

## RESEARCH

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### Journal Paper:

08/2023 **Edge Detection via Fusion Difference Convolution**. *Sensors* **2023**, 23, 6883.(SCI Q2)

- Improvement of the original PDC structure by adding a vanilla convolutional layer.
- Introduction of an oblique fusion differential convolutional structure, which addresses the challenge of accurately identifying oblique edges in the presence of complex edge information.

### Patent:

2022.09 **Method and device for detecting the edge of the surface guide rail steel plate protective cover (202211568856.X.)**

- Based on VGG16, the network structure is modified and gradient information is introduced.
- Modify the loss function to the dice coefficient equation to obtain a refined image of the refined edges.

### Project:

2022.09 **Research and Application of Key Technologies for Real-time Fault Diagnosis of Intelligent Production Line of Industrial Internet of Things**. National Key R&D Program(2017YFE025300)

## HONOR & AWARD

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- 10/2022 "Huawei Cup" China Graduate Mathematical Modeling Competition National Second Prize
  - On the scientific management of daily necessities during the epidemic
- 05/2018 Mathematical Modeling Competition Provincial First Prize
  - Special Clothing Design for hot environment