

# Chen Sun

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## Education

<b>Huazhong University of Science &amp; Technology (HUST)</b>	<b>GPA:</b> 90.73/100	<i>Hubei, China</i>
<i>Master</i> in Mechanical Engineering	Supervisor: Prof. <a href="#">Liang Gao</a>	<b>2020.09- 2023.06</b>
<b>Huazhong University of Science &amp; Technology (HUST)</b>	<b>GPA:</b> 88.5/100 (3.89/4.0)	<i>Hubei, China</i>
<i>B.E.</i> in Mechanical Design, Manufacture & Automation	Rank 7/33 (Experimental Program)	<b>2016.09- 2020.06</b>

## Honors

### Scholarships & Awards:

- First-class Scholarship for Postgraduates of HUST, 2020.09 & 2021.09
- Excellent Graduates of HUST, 2019.06
- Third Prize of Zhixing Scholarship of HUST, 2021.09
- Merit Postgraduate student of HUST, 2021.09

### Competitions:

- **First Prize Oral Presentation Winner & Outstanding Poster Award Winner** of IEEE CASE student event, 2022.08
- **Mathematical Modeling Stars Nomination** of China Post-graduate Mathematical Modeling Contest 2022.05
- **The third prize** (8/264) of AI Innovation & Application Competition Industrial Intelligence Track, 2021.12

## Research Interests

- Data-Efficient Learning: Overcome tasks such as few-shot learning and semi-supervised learning in real-world data
- Transfer Learning: Cross-Domain classification and detection in real-world data, such as cross-camera, cross equipment.

## Publications & Manuscripts

- [1] S Ke, **C Sun**, L Gao, X Li Open-Set Fault Diagnosis based on Prototype Learning with Dual Category-Classifer. *IEEE Transactions on Industrial Informatics (IEEE TII)* Under Review
- [2] **C Sun**, L Gao, X Li, Y Gao. A New Knowledge Distillation Network for Incremental Few-Shot Defect Detection. *IEEE Transactions on Neural Networks and Learning Systems (IEEE TNNLS)* Under Review
- [3] **C Sun**, Q Wan, Z Li, L Gao, X Li, Y Gao. Anchor-based Detection and Height Estimation Framework for Particle Defects on Cathodic Copper Plate Surface. *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)*
- [4] C Liu, Y Cao, **C Sun**, W Shen, X Li, L Gao. An Outlier-Aware Method for UWB Indoor Positioning in Non-line-of-sight Situations. *2022 IEEE 25th International Conference on Computer Supported Cooperative Work in Design (CSCWD)*

## Research Projects

- **Data-Limited Object Detection for Industrial Inspection** (2021.07-present)
  - When training data are few-shot and class-incremental* [\[Github\]](#)
  - A novel Incremental RCNN network is proposed to decouple feature representation and alleviate unstable data quality.
  - A knowledge distillation framework is designed for fine-tuning, to balance between knowledge retention and exploration
  - 1 paper under review in IEEE TNNLS
  - When training data include unlabeled images* [\[Github\]](#) [\[Slide\]](#)
  - Add-on tricks, such as self-attention module, GIOU loss, are deployed on Cascade RCNN for stronger baseline performance
  - Self-training with label-denoising and consistency augmentation is designed to exploit unlabeled data
  - The third prize (8/264) in 1st AI Innovation & Application Competition Industrial Intelligence Track
  - When collected data have small objects and extra height annotations* [\[Github\]](#)
  - An image blocking operation is utilized to crop large-scale raw images into several input blocks
  - A Height-RCNN network is designed to conduct detection and height estimation simultaneously in an end-to-end manner
  - 1 patent is applied and 1 paper is accepted in *IEEE CASE 2022*