Zhang Rongchuan

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Education

National University of Malaysia, B.Sc. in Computer Science with honor — Sep 2019 – Oct 2023
- GPA: 3.46/4.0(German equivalent: 1.5)

University of Stuttgart, M.Sc. in Computer Science — Apr 2024 – Present
- Current GPA: 2.3

Work Experience

Research Assistant, UKM – CAIT LAB, Kuala Lumpur — Oct 2022 – Mar 2023

Focus Areas: Semantic Segmentation, CV
- Engaged in the 2022 International Undergraduate Medical Research Academic Conference. Researched applications of computer vision in Type 2 diabetes.
- Conducted experimental testing of FCNN integration for semantic segmentation, optimizing performance with enhanced approaches.
- Authored a paper on Semantic Segmentation of Tiny Objects Using Hierarchical Constrained-CNN, achieving improved segmentation for small objects through innovative hierarchical structures and novel mapping methods.

Studentischen Hilfskraft, Uni Stuttgart – Institute for KI , Stuttgart — Jun 2024 – Mar 2025

Focus Areas: Knowledge Graph, NLP
- Trained multiple temporal knowledge graph embedding models, fine-tuned hyperparameters to improve performance.
- Analyzed existing evaluation metrics for temporal knowledge graph embeddings and assisted in developing improved metrics.
- Exploring and implementing advanced embedding methods to enhance performance and stability in temporal knowledge graph tasks

R&D Internship, Shining3D - R&D Germany, Stuttgart — Apr 2025 – Sep 2025

Focus Areas: Knowledge Graph, NLP
- Developed an intelligent control interface integrating MCP protocol and LLM to operate SHINING 3D scanners via natural language commands
- Planned and executed automated scanning workflows tailored to customer requirements, using path planning techniques with SHINING 3D scanners

Publications

Photometric and Geometric Data Augmentations for Small Object Detection — Sep 2022

Rongchuan Zhang

Bachelor's Thesis, National University of Malaysia, 2022(Supervised by Assoc. Prof. Dr. Azizi Abdullah)

Towards Foundation Model on Temporal Knowledge Graph Reasoning — Sep 2025

Jiaxin Pan, Mojtaba Nayyeri, Osama Mohammed, Daniel Hernández, *Rongchuan Zhang*, Cheng Cheng, Steffen Staab

information about conference

Topic of master thesis — Sep 2026

Rongchuan Zhang, Master's Thesis, University of Stuttgart, 2026(Supervised by)

Projects

Enhancing Aerial Image Semantic Segmentation of Tiny Objects using Hierarchical Constrained CNN Approach — Technical Report

- Designed and implemented a novel hierarchical structure in a CNN-based semantic segmentation model,

enabling precise spatial information extraction for tiny objects.

- Proposed two novel models with constrained feature mapping, leveraging newly defined pixel types to bridge fine-grained and coarse-grained outputs, enhancing the detection of challenging tiny objects.
- Successfully applied the model to detect tiny objects in the UAVid dataset and Danish golf dataset.

Skills

Programming Languages: Java, Python, SQL, Sparql, C

Frameworks and Libraries: Tensorflow, Pytorch, Lightning, Keras; NumPy, Pandas, Matplotlib

Linguistic Skills: English – Proficient, German – Beginner, Chinese – Native

Other: Linux, ROS, Git, Docker, LaTeX