Zhongze Luo

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Educational experience

2021.9 - Present **Northeast Forestry University (211)**

Communication engineering

- GPA: 88.08/100 Ranking: 14/73(20%) CET6: 432
- Major course: Fundamentals of programming (99); University Physics A2 (98); Circuit Theory I (95); Analogue Electronic Technology (92); Digital Signal Processing (91); Optical Fiber Communication (90)

Certificate of honor

2022.3 University-level first-class scholarship
2022.11 First prize in Heilongjiang Province, National College Students Mathematical Contest in Modeling
2023.8 Third prize in Heilongjiang Province, National College Students Electronic Design Competition
2024.5 First prize in Heilongjiang Province, China College Student Computer Design Competition
2024.5 Third prize in Heilongjiang Province, Datang Cup National College Students New Generation Information and Communication Technology Competition

Internship experience

2024.1 - 2024.3 **BYD Company Limited**

Hardware intern, learning to solder small capacitors, resistors, and other components, including 0201MLCC, 0402MLCC, and MCU. Learning hardware circuit knowledge, including DC-DC Power, EMC protection, and ADI power design. Mastering real-car measurement methods and participating in oscilloscope testing of the vehicle's rear-domain control circuit board to record the steady-state, impulse, stall current, and input waveform's action-unoccurring voltage and action-occurring voltage. Using Excel to create tables to record the data.

2024.7 - Present **CUHKSZ**

As a visiting student, I joined the laboratory of the School of Science and Engineering(SSE) at the Chinese University of Hong Kong (Shenzhen) to study and conduct research in the direction of multimodal large models (MLLM).

Scientific research experience

2022.12 - 2024.5 **National Undergraduate Innovation Training Program Project**

Project leader of "Elderly fall alarm system based on Raspberry PI and OpenCV"

- As the project leader, responsible for organizing the opening defense, writing reports, coordinating progress and overseeing major project tasks.
- Deep learning was used to train the open source fall datasets, yolov5 was used to train the datasets, C3CBAM module and lightweight C3GhostNet2 module were proposed to improve the model by integrating the attention mechanism, and CARAFE, a lightweight and efficient upsampling operator, was used to improve the model, and good ablation experimental results were obtained.
- Project uses Raspberry PI and Jeston Orin Nano as the model transplant carrier, connects the camera module and the communication module, and realizes the function of automatically triggering the alarm when the elderly fall.

Scientific research achievement

- ***Luo, Z.***, Jia, S., Niu, H., Zhao, Y., Zeng, X., Dong, G.* (2024). Elderly Fall Detection Algorithm Based on Improved YOLOv5s. ***Information Technology and Control***, 53(2), 601-618. (SCI Q3, IF:2) *https://doi.org/10.5755/j01.itc.53.2.36336*
- Sun, J., ***Luo, Z.**** ForPKG-1.0: A Framework for Constructing Forestry Policy Knowledge Graph and Application Analysis. ***(Under Review on Expert Systems)***
- Sun, J., Dai, C., ***Luo, Z.***, Chang, Y., Li, Y.* LawLuo: A Chinese Law Firm Co-run by LLM Agents. *https://doi.org/10.48550/arXiv.2407.16252* ***(Under Review on AAAI2025)***

- Sun, J., ***Luo, Z.***, Li, Y.* A Compliance Checking Framework Based on Retrieval Augmented Generation. ***(Under Review on COLING2025)***

School experience

2021.9 - 2023.11 **New Media Center, Northeast Forestry University**

Deputy director of editorial Department

I joined the school-level student organization, participated in the school news and publicity work, was responsible for the graphic editing of the school's official wechat public account, participated in the publication of hundreds of graphic articles on the public account, and won the honorary title of "Best Editor" in the first semester of 2021-2022.

Relevant skills

- Familiar with C++, python language programming, skilled use of Altium Designer and other PCB design software.
- Familiar with the training process and model deployment of deep learning models, familiar with Raspberry PI, stm32 and Linux operating systems.

Self-evaluation

- Actively enterprising, recommended by the mentor to participate in the academic conference "the First Heilongjiang Digital Medicine Conference", to understand the cutting-edge development of deep learning, image processing, and big data in the medical field.
- Warm and friendly, with a wide range of hobbies, good at communicating with others, and participated in class management as a sports committee member in school.