刘家明

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🌐 谷歌学术

教育背景

2022 – 至今　🔖 **博士 复旦大学, 微电子学院-集成芯片与系统全国重点实验室**
专业: 电子信息
研究方向: 自动化视觉, 人工智能, 图像处理, 数字集成电路设计, 电子设计自动化

2019 – 2022　🔖 **硕士 西南交通大学, 信息科学与技术学院-微电子研究所**
专业: 电路与系统
研究方向: 数字集成电路设计, 信道编码

2015 – 2019　🔖 **学士 西南交通大学, 信息科学与技术学院-微电子研究所**
专业: 电子科学与技术
研究方向: 数字集成电路设计

论文/专利

学术期刊

1. **Jiaming Liu** and Quanyuan Feng, "A miniaturized ldpc encoder: Two-layer architecture for ccsds near-earth standard," **IEEE Transactions on Circuits and Systems II: Express Briefs**, vol. 68, no. 7, pp. 2384–2388, 2021, (Q2/TOP/集成电路顶级期刊). 🔗 DOI: 10.1109/TCSII.2021.3054334.

2. **Jiaming Liu**, Zhijian Hao, Lingxiu Zhao, Jiazheng Lian, Jun Tao, *et al.*, "A low valid throughput loss ldpc codec architecture with variable code rate," **IEEE Transactions on Circuits and Systems II: Express Briefs**, vol. 71, no. 5, pp. 2644–2648, 2024, (Q2/TOP/集成电路顶级期刊). 🔗 DOI: 10.1109/TCSII.2023.3344221.

3. Zhijian Hao, Heming Sun, Guohao Xu, **Jiaming Liu**, Xiankui Xiong, *et al.*, "Fast transform kernel selection based on frequency matching and probability model for av1," **IEEE Transactions on Broadcasting**, vol. 70, no. 2, pp. 693–707, 2024, (Q1). 🔗 DOI: 10.1109/TBC.2024.3374078.

4. Ruoxi Zhu, Zhengzhong Tu, **Jiaming Liu**, Alan C. Bovik, and Yibo Fan, "Mwformer: Multi-weather image restoration using degradation-aware transformers," **IEEE Transactions on Image Processing**, vol. 33, pp. 6790–6805, 2024, (Q1/TOP/CCF-A). 🔗 DOI: 10.1109/TIP.2024.3501855.

5. Zhijian Hao, Chenlong He, **Jiaming Liu**, Qi Zheng, Jinchang Xu, *et al.*, "A novel transform accelerator with fast kernel selection and efficient transform circuit," **IEEE Transactions on Circuits and Systems I: Regular Papers**, pp. 1–14, 2025, (Q1/TOP/集成电路顶级期刊). 🔗 DOI: 10.1109/TCSI.2025.3543575.

学术会议

1. **Jiaming Liu**, Zihao Liu, Xuan Huang, Ruoxi Zhu, Qi Zheng, *et al.*, "Auto-isp: An efficient real-time automatic hyperparameter optimization framework for isp hardware system," in **Proceedings of the 61st ACM/IEEE Design Automation Conference (DAC)**, (CCF-A/EDA 唯一顶会), San Francisco, CA, USA, 2024. 🔗 DOI: 10.1145/3649329.3655952.

2. **Jiaming Liu***, Qi Zheng*, Zihao Liu, Yilian Zhong, Peiye Liu, *et al.*, "Frequency-biased synergistic design for image compression and compensation," in **Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)**, (CCF-A/计算机视觉顶会), 2025.

3 **Jiaming Liu**, Xuan Huang, Zhijian Hao, Ruoxi Zhu, Qi Zheng, *et al.*, "Mas-isp: A proxy-free online hyperparameter optimization framework for isp hardware system," in **Proceedings of the 62nd ACM/IEEE Design Automation Conference (DAC)**, (CCF-A/EDA 唯一顶会), 2025.

4 Shuocheng Wang, **Jiaming Liu**, Yilian Zhong, Ruoxi Zhu, Jiazheng Lian, *et al.*, "A fast saturation based dehazing framework with accelerated convolution and attention block," in **IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)**, (CCF-B), 2025, pp. 1–5. DOI: 10.1109/ICASSP49660.2025.10889261.

5 Yilian Zhong, **Jiaming Liu**, Xuan Huang, Jingjing Liu, Yibo Fan, *et al.*, "Cdcnet: A fast and lightweight dehazing network with color distortion correction," in **IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)**, (CCF-B), 2024, pp. 3020–3024. DOI: 10.1109/ICASSP48485.2024.10447111.

6 Shuocheng Wang, **Jiaming Liu**, Ruoxi Zhu, Jiazheng Lian, Chengkang Huang, *et al.*, "A lightweight cnn for detail enhancement and color correction of low-light capsule endoscopy," in **2024 IEEE Biomedical Circuits and Systems Conference (BioCAS)**, (生物电子旗舰会议), 2024, pp. 1–5. DOI: 10.1109/BioCAS61083.2024.10798350.

7 Zhijian Hao, **Jiaming Liu**, Chenlong He, Qi Zheng, Shushi Chen, *et al.*, "A high-precision and low-cost approximate transform accelerator for video coding," in **Proceedings of the 62nd ACM/IEEE Design Automation Conference (DAC)**, (CCF-A/EDA 唯一顶会), 2025.

专利

1 Quanyuan Feng, **Jiaming Liu**, and Jian Cheng, *Joint decoding method and system based on bit-flip algorithm to accelerate soft decoding*, CN 112350738B, 2021.

2 Quanyuan Feng and **Jiaming Liu**, *A miniaturized ldpc encoder circuit based on rate adaptation*, CN 113285724B, 2022.

3 Quanyuan Feng and **Jiaming Liu**, *A efficient ldpc encoder circuit based on rate adaptation*, CN 113300717B, 2022.

工程合作

2022-2024   🔖 **复旦大学 - 阿里巴巴达摩院**
项目①: 高性能开源图像处理器 *IP* 设计 (2022-2024)
项目②: 基于深度学习的新型视频图像压缩框架 (2023-2024)
项目③: 基于深度学习的人脸修复技术 (2022)

2023-2024   🔖 **复旦大学 - 肇观电子**
项目①: 车规级图像处理芯片设计 (台积电 *28nm* 流片中)

2022-2023   🔖 **复旦大学 - 美乐威**
项目①: *4K@60FPS* 图像处理器 *FPGA IP* 设计

科技竞赛

2021   🔖 **中国研究生电子设计竞赛**
作品: 灾后自救应急通信系统 (队长)
奖项①: 全国 *TOP 2* (研电之星)(2/5000+)   奖项②: 全国一等奖 (小组第一)
奖项③: 西南赛区一等奖

🔖 **中国研究生创 "芯" 大赛**
作品: 基于 LDPC 纠错技术的编解码芯片设计 (队长)
奖项①: 芯华章专项全国一等奖 (第一名)   奖项②: 全国二等奖

科技竞赛 (continued)

2020　■ **全国大学生集成电路创新创业大赛**
作品: NAND FLASH Controller 芯片设计 (队长)
奖项①: 全国特等奖 (奖金数 *TOP1*) (1/2000+)　　奖项②: 紫光展锐大奖（唯一奖）
奖项③: 西南赛区一等奖　　　　　　　　　　　奖项④: 成都高新区特别奖

荣誉与奖学金

2025　■ **一等奖学金**, 复旦大学

2022　■ **竢实扬华奖章–校学生最高荣誉 (3/12900+)**, 西南交通大学

　　　■ **省优秀毕业生**, 四川省，中国

2021　■ **国家奖学金**, 中华人民共和国教育部

　　　■ **Intel Fellowship**, Intel 公司

2020　■ **国家奖学金**, 中华人民共和国教育部

　　　■ **优秀研究生标兵、优秀学生干部、一等奖学金**, 西南交通大学

技能

编程语言　■ Verilog, C, C++, Python, Matlab, LaTeX, ...

EDA/AI　■ VCS, DC, Vivado, ISE, QuartusII, Pytorch

技术方向　■ 深度神经网络 (DNN), 脉冲神经网络 (SNN), 计算机视觉 (CV), 图像处理器 (ISP), 深度强化学习 (DRL), 进化算法 (EA), 大语言模型 (LLM), 视觉语言动作 (VLA), 生成式 AI(AIGC), 多模态学习, LDPC 编解码器

兴趣

AI　■ 具身智能, VLM, VLA, VLM, AI for Auto-control, 脉冲神经网络, 多模态信息处理等

IC　■ 神经网络加速器, 图像处理器, 敏捷化芯片设计, AI for EDA 等