FU Jiaye

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EDUCATION BACKGROUND

Beijing University of Technology Beijing, CN
B.Eng in Electronic and Information Engineering with honors 2020.09 -2024.07

University College Dublin Dublin, IR
B.Eng in Electronic and Information Engineering 2020.09 -2024.07

- GPA: 3.84/4.2
- IELTS: 7; GRE: 323 (V: 155, Q: 168); CET-4: 574;

Peking University, School of Electronic and Computer Engineering. Shenzhen, CN
M.S. in Computer Science and Technology 2024.09-2027.06

- Advisor: *Prof. Siwei Ma*, *IEEE Fellow* and *Prof. Jian Zhang*

Research Interests: Video Compression | Image Compression | 3D Reconstruction

RESEARCH EXPERIENCE

National Engineering Research Center of Visual Technology, Peking University 2022.12-Present
Research Assistant (Researcher Advisor: Prof. Siwei Ma (IEEE Fellow))

- Explored the next generation video compression technology based on AVS3 and H.266 standards, mainly focusing on the intra and inter prediction.
- Contributed 20+ proposals to video coding standard group including AVS and JVET.

Tsinghua University 2022.03-2023.06
Research Intern (Researcher Advisor: Associate Prof. Fei Qiao)

- Acquired a lot of lightweight neural network construction ideas and calculation logic, and grasped its application in practical cases, including YOLO series, ShuffleNet series, etc.
- Participated in the work of algorithm localization, algorithm transformation (Python to C) and algorithm deployment on FPGA board in the in-group project.

ACTIVITY

Design and Control of Intelligent Tuning System for Robot Arm Based on Deep Learning 2022.01-2023.01
National College Student Innovation and Entrepreneurship Training Program
Researcher Advisor: Prof. Gao Huang & Prof. Guoyu Zuo

- As group member, realized the automatic tuning of piano by stepper motor and planetary gear reduction group under the adjustment algorithm, image recognition algorithm and motor control system.
- Used deep learning (RNNoise algorithm) to deal with noise problems and various unstable factors such as hardware errors, Computer Vision and convolutional neural network are used to realize the integration of piano tuning of the robot arm, and extended fundamental frequency extraction algorithm is used to realize multi-tone recognition.

PUBLICATION

- **J. Fu**, X. Meng, J. Zhang et. al. “Recurrent Intra Prediction Mode in Future Video Coding.” *2025 IEEE Data Compression Conference (DCC)*. IEEE, 2025.
- **J. Fu**, Q. Gao et. al. “ReCon-GS: Continuum-Preserved Guassian Streaming for Fast and Compact Reconstruction of Dynamic Scenes”, *39th Advances in Neural Information Processing Systems.* 2025.
- J. Zhang, **J. Fu*** et. al. “Enhanced Template-based Intra Mode Derivation with Adaptive Block Vector Replacement.” *2025 IEEE Picture Coding Symposium (PCS)*. IEEE, 2025.
- Y. Zhao, **J. Fu**, Z. Li et. al. “Advanced Learning-Based Coding Tools for ECM: Intra Prediction and In-Loop Filtering.” *2025 IEEE International Symposium on Circuits and Systems (ISCAS)*. IEEE, 2025.
- W. Duan, **J. Fu** et. al. “Learned Image Compression via Local-to-global Cross-component Prior.” *IEEE Transactions on Multimedia*. IEEE, 2025.
- C. Wen, Q. Gao, **J. Fu** et. al. “TGW: Sliding with Temporal Gaussian Window for Fast and Lightweight Dynamic Scene Reconstruction”, *IEEE Transactions on Circuits and Systems for Video Technology,* IEEE, 2025. (Under Review)
- Z. Song, **J. Fu** et. al. “TinySplat: Feedforward Approach for Generating Compact 3D Scene Representation.” *IEEE Transactions on Circuits and Systems for Video Technology,* IEEE, 2025. (Under Review)

- X. Lu, **J. Fu** et. al. "ProSplat: Improved Feed-Forward 3D Gaussian Splatting for Wide-Baseline Sparse Views." *IEEE Transactions on Circuits and Systems for Video Technology*. IEEE, 2025. (Under Review)

STANDARDIZATION CONTRIBUTIONS

- **J. Fu**, J. Zhang, C. Jia, S. Ma, Y. Gao, C. Huang, "Non-EE2: Intra Angular Prediction Extension", JVET-AE0120, Geneva, CH, July, 2023.
- **J. Fu**, Z. Li, J. Zhang, C. Jia, S. Ma, Y. Gao, C. Huang, "Region-based Intra Template Matching Prediction", AVS-M8064, Chengdu, China, December, 2023.
- W. Zheng, Z. Li, **J. Fu**, J. Zhang, C. Jia, S. Wang, S. Ma, "Report of 400 and lossless video coding in AVS3", AVS-M8033, Chengdu, China, December, 2023.
- Z. Li, X. Han, Z. Huang, **J. Fu**, J. Zhang, S. Ma, Y. Jiang, Y. Gao, C. Huang, "DMVR & BIO based motion vector refreshment", AVS-M8231, Shenzhen, China, March, 2024.
- **J. Fu**, Z. Li, J. Zhang et. al., "EE2-related: IntraTMP extension to TIMD", JVET-AH0071, Rennes, FR, April, 2024.
- Z. Li, **J. Fu**, J. Zhang et. al., "EE1-2: DMVR & BIO based motion vector refreshment", AVS-M8359, Shaoxing, China, June, 2024.
- Z. Li, **J. Fu**, J. Zhang et. al., "Report of 400 and lossless video coding in AVS3", AVS-M8360, Shaoxing, China, June, 2024.
- **J. Fu**, Z. Li, J. Zhang et. al., "Non-EE2: Improved OBIC with PDP", JVET-AI0079, Sapporo, JP, July, 2024.
- **J. Fu**, Z. Li, J. Zhang et. al., "EE2-related: Intra merge mode extension with BV improvement", JVET-AI0224, Sapporo, JP, July, 2024.
- K. Naser, **J. Fu** et. al., "EE2-2.2: TIMD with enhanced block vectors deployment", JVET-AI0104, Sapporo, JP, July, 2024.
- Y. Zhao, **J. Fu**, W. Duan et. al., "Neural network-based inter prediction filter", AVS-M8473, Weihai, China, August, 2024.
- Z. Li, **J. Fu**, J. Zhang et. al., "EE1-1: DMVR & BIO based motion vector refreshment", AVS-M8516, Weihai, China, August, 2024.
- **J. Fu**, J. Zhang, S. Wang, S. Ma et. al., "EE2-2.2a/b: Intra merge mode extension with BV development", JVET-AJ0149, Kemer, TK, November, 2024.
- K. Naser, **J. Fu** et. al., "EE2-2.3/EE2-2.4: TIMD with enhanced block vectors deployment and BV merge list improvement", JVET-AJ0149, Kemer, TK, November, 2024.
- M. Abdoli, Y.-J. Chang, **J. Fu** et. al., "EE2-2.5: TIMD merge mode", JVET-AJ0061, Kemer, TK, November, 2024.
- **J. Fu**, J. Zhang et. al., "Non-EE2: OBIC extension with PDP and advanced sampling strategy", JVET-AJ0269, Kemer, TK, November, 2024.
- Y. Zhao, S. Liao, **J. Fu** et. al., "QP-adaptive based In-Loop Filter tool", AVS-M8806, Changsha, China, March, 2025.
- **J. Fu**, J. Zhang et. al., "Non-EE2: TIMD-BV extension with enhanced IntraTMP merge list", JVET-AL0195, Teleconference, March, 2025.
- K. Naser, **J. Fu** et. al., "[AHG12] Combination of JVET-AL0174, JVET-AL0195 and JVET-AL0241 on Enhanced TIMD with NNIP and Optimized Block Vector Derivation", JVET-AL0290, Teleconference, March, 2025.
- **J. Fu**, K. Naser et. al., "EE2-1.2a/b/c: TIMD-BV extension with enhanced IntraTMP merge list", JVET-AM0138, Daejeon, KR, June, 2025.
- **J. Fu**, M. Blestel et. al., "EE2-1.6: Intra Merge Mode", JVET-AM0074, Daejeon, KR, June, 2025.

PATENT

- Intra Prediction Method of Encoder and Decoder, Device, Storage Medium, CN202310807774.4, 2023.
- Intra Template Matching Prediction Method, Processing Node, and Storage Medium, CN202311710164.9, 2023.
- Intra Prediction Method, Encoder and Decoder Method, Device, Medium, and Program, CN202410427155.7, 2024.
- Video Frame Prediction Method, Video Bitstream Processing Method, and Device, CN202410890999.5, 2024.
- Predicting Video Block Method, Video Bitstream Processing Method, and Device, CN202411118142.8, 2024.

HONOR

- 2020-2021 Academic Excellence Award of Beijing University of Technology
- 2021-2022 Academic Excellence Award of Beijing University of Technology
- 2022-2023 Academic Excellence Award of Beijing University of Technology
- 2024 Outstanding Graduates of Beijing University of Technology
- 2024 Outstanding Undergraduate Thesis (Beijing Municipal, Top 0.37% at Beijing)
- Honorable Mention Winner in Mathematical Contest in Modeling (MCM) in 2022-2023

PROFESSIONAL ACTIVITY

- Reviewer Service:
  - Proceedings of the ACM International Conference on Multimedia (ACM MM)
  - IEEE Visual Communications and Image Processing (VCIP)

TEACHING EXPERIENCE

- TA: COMP1001J: Introduction to Programming 1, BJUT, Autumn. 2022
- TA: COMP2005J: Data Structures and Algorithms, BJUT, Autumn. 2022
- TA: EEEN2002J: Electronic Circuits, BJUT, Spring. 2023
- TA: EEEN2003J: Digital Circuits, BJUT, Spring. 2023
- TA: COMP1002J: Introduction to Programming 2, BJUT, Spring. 2023
- TA: COMP2003J: Object-oriented Programming, BJUT, Spring. 2023
- TA: COMP2006J: Operating System, BJUT, Autumn. 2023

SKILL

- Programming Language: C, C++, Java, Python, Verilog, Matlab, Latex, AVX2, SSE
- Language: English, Mandarin