

Chuanmin Jia

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RESEARCH INTERESTS

- Video Compression/Processing
- Light Field Image Coding
- Deep Feature Compression
- Machine Learning

EDUCATION

Peking University (PKU), BJ, CHN, 2015.Sep – present
• *Ph.D. student*, Electronics Engineering & Computer Science
• Advisor: Prof. Siwei Ma and Prof. Wen Gao

New York University (NYU), NY, USA, 2017.Dec – present
• *Visiting Ph.D student*, Electronic and Computer Engineering
• Advisor: Prof. Yao Wang

Beijing Univ. of Posts. & Telecom. (BUPT), BJ, CHN, 2011.Sep – 2015.July
• *B.Eng*, School of Computer Science
• GPA: 86.7/100, rank: 35/301
• Thesis: Research on Compressed Video Enhancement and GPU Acceleration.

RESEARCH EXPERIENCE

Visiting scholar, NYU-Tandon Dec. 2017 – present
Video Lab, Brooklyn, NY
• Research on deep learning based coding tools for next generation video coding standard.
• Deep learning feature coding algorithms for facial images and surveillance videos.

Research Assistant, PKU-EECS Sep. 2014 – present
Institute of Digital Media, Beijing
• Designed machine learning based in-loop filtering video coding tools for future video coding standards.
• Implemented video restoration and quality enhancement algorithm based on non-local self similarity prior.
• Proposed high efficiency light field image compression algorithm based on sub-aperture adaptation.
• Optimized virtual-view synthesis algorithm using CUDA, achieved real-time view synthesis for full HD videos.

Research Intern, PKU-EECS Feb. 2014 – Aug. 2014
Institute of Computational Linguistics, Beijing
• Conducted performance comparison on different deep learning algorithms for Chinese word segmentation and word embedding.

Research Intern, BUPT-SCS Aug. 2013 – Mar. 2014
Innovation Center, Beijing
• Interned as a national undergraduate projects member for innovation research.

PUBLICATIONS *Journal Papers*

- **C. Jia**, F. Luo, X. Zhang, S. Wang, S. Wang and S. Ma, “Fast Non-local Adaptive In-Loop Filter Optimization on GPU,” **submitted** to IEEE Transactions on Multimedia (TMM), 2018 (Under Review).
- **C. Jia**, X. Zhang, S. Wang, S. Wang and S. Ma, “Light Field Image Compression Using Generative Adversarial Network Based View Synthesis,” **submitted** to IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS), 2018 (Under Review).
- S. Ma, S. Wang, X. Zhang, X. Zhang, **C. Jia** and S. Wang “Joint Feature and Texture Coding: Towards Smart Video Representation via Front-end Intelligence,” **Accepted** by IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2018.
- S. Ma, X. Zhang, J. Zhang, **C. Jia**, S. Wang and W. Gao “Nonlocal In-Loop Filter: The Way Toward Next-Generation Video Coding?,” *IEEE MultiMedia* 23 (2), 16-26. (**Best Paper Award**)

Conference Papers

- Y. Li, **C. Jia**, S. Wang, X. Zhang, S. Wang, S. Ma and W. Gao, “Joint rate-distortion optimization for simultaneous texture and deep feature compression of facial images,” *Proc. of IEEE International Conference on Multimedia Big Data (BigMM)*, Xi’an, China, Sep, 2018.
- Y. Yang, Z. Zhao, **C. Jia**, X. Zhang, S. Wang and S. Ma, “Convolutional Neural Network based Intermediate View Synthesis for Light Field Image Compression,” by *Proc. of IEEE International Workshop on Multimedia Signal Processing (MMSP)*, Vancouver, Canada, Aug, 2018.
- S. Wang, Z. Zhao, **C. Jia**, X. Zhang, X. Zhang, S. Wang, S. Ma and W. Gao, “Deep Network Based Image Compression with Adaptive Pre- and Postprocessing,” *Proc. of IEEE International Workshop on Multimedia Signal Processing (MMSP)*, Vancouver, Canada, Aug, 2018.
- Z. Zhao, S. Wang, **C. Jia**, X. Zhang, S. Ma and J. Yang, “Light Field Image Compression Based on Deep Learning,” *Proc. of IEEE International Conference on Multimedia & Expo (ICME)*, San Diego, California, USA, July, 2018. (Oral, 15%)
- Y. Wang, X. Fan, **C. Jia**, D. Zhao and W. Gao, “Neural Network Based Inter Prediction for HEVC,” *Proc. of IEEE International Conference on Multimedia & Expo (ICME)*, San Diego, California, USA, July, 2018. (Poster, 30%)
- X. Meng, **C. Jia**, S. Wang, X. Zheng and S. Ma, “Optimized Non-local In-Loop Filter for Video Coding,” *Proc. of IEEE Picture Coding Symposium (PCS)*, San Francisco, California, USA, June, 2018. (Poster)
- **C. Jia**, S. Wang, X. Zhang, S. Wang and S. Ma, “Spatial-Temporal Residue Network Based In-Loop Filter for Video Coding,” *Proc. of IEEE Visual Communications and Image Processing (VCIP)*, St.Petersburg, Florida, USA, Dec, 2017. (Oral)
- **C. Jia**, Y. Yang, X. Zhang, S. Wang, S. Wang and S. Ma, “Light Field Image Compression with Sub-apertures Reordering and Adaptive Reconstruction,” *Proc. of the Pacific-Rim Conference on Multimedia (PCM)*, Harbin, China, Sept, 2017. (Oral) (**Best Paper Award**)
- **C. Jia**, Y. Yang, X. Zhang, S. Wang, X. Zhang, S. Wang and S. Ma, “Optimized Inter-view Prediction Based Light Field Image Compression with Adaptive Reconstruction,” *Proc. of IEEE International Conference on Image Processing*

(**ICIP**), grand challenge for LF image coding, Beijing, China, Sept, 2017. (Oral)

- **C. Jia**, X. Zhang, J. Zhang, S. Wang and S. Ma, “Deep Convolutional Network based Image Quality Enhancement for Low Bit Rate Image Compression,” *Proc. of IEEE Visual Communications and Image Processing (VCIP)*, Chengdu, China, Nov. 2016. (Oral)
- J. Zhang, **C. Jia**, N. Zhang, S. Ma, and W. Gao, “Structure-driven Adaptive Non-local Filter for High Efficiency Video Coding (HEVC),” *Proc. of IEEE Data Compression Conference (DCC)*, Snowbird, Utah, USA, Mar. 2016. (Oral) (**Top Conference in Data Compression**)
- J. Zhang, **C. Jia**, S. Ma, and W. Gao, “Non-Local Structure-Based Filter for Video Coding,” *Proc. of IEEE International Symposium on Multimedia (ISM)*, Miami, Florida, USA, Dec. 2015. (Oral)

Standardization Contributions

- X. Meng, **C. Jia**, Z. Wang, S. Wang, S. Ma, X. Zheng, “CE2: Non-local Structure-based Filter,” Joint Video Exploration Team (JVET) of ITU-T SG, **JVET-K0160**, Ljubljana, Slovenia, July, 2018.
- Z. Wang, X. Meng, **C. Jia**, J. Cui, S. H. Wang, S. Wang, S. Ma, W. Li, Z. Miao and X. Zheng, “Description of SDR video coding technology proposal by DJI and Peking University,” Joint Video Exploration Team (JVET) of ITU-T SG, **JVET-J0011**, San Diego, USA, April, 2018.
- X. Meng, **C. Jia**, Z. Wang, S. Wang, S. Ma, X. Zheng, “Non-local Structure-based Filter with integer operation,” Joint Video Exploration Team (JVET) of ITU-T SG, **JVET-J0071**, San Diego, USA, April, 2018.

PROFESSIONAL Reviewer Service ACTIVITY

- IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT).
- Journal of Visual Communication and Image Representation (JVCIR).
- IEEE International Conference on Image Processing (ICIP).
- IEEE International Conference on Multimedia and Expo (ICME).
- IEEE International Symposium on Multimedia (ISM).
- IEEE Visual Communication and Image Processing (VCIP).
- IEEE Student Member

Conference Presentations and Invited Talks

- Description of SDR video coding technology proposal by DJI and Peking University, *San Diego, CA, U.S, April. 2018*
- Non-local Structure-based Filter with integer operation, *San Diego, CA, U.S, April. 2018*
- Spatial-Temporal Residue Network Based In-Loop Filter for Video Coding, *V-CIP2017, St Petersburg, FL, U.S, Dec. 2017*
- Light Field Image Compression with Sub-apertures Reordering and Adaptive Reconstruction, *PCM2017, Harbin, China, Sep. 2017*
- Optimized Inter-View Prediction Based Light Field Image Compression With Adaptive Reconstruction, *ICIP2017, Grand Challenge for Light Field Image coding, Beijing, China, Sep. 2017*
- Deep Convolutional Network based Image Quality Enhancement for Low Bit Rate Image Compression, *VCIP2016, Chengdu, China, Nov. 2016*

TEACHING EXPERIENCE	TA: Video Coding and Understanding (EECS 04812102), EECS, PKU, Spring.2017 TA (for projects): Image and Video Processing (EL-GY 6123), ECE, NYU, Spring.2018
COMPUTER SKILLS	<i>Languages & Software:</i> C/C++, CUDA, MATLAB, Power Shell, Python, L ^A T _E X. <i>Operating Systems:</i> Mac OS X, Ubuntu Linux, Windows. <i>Libraries/Frameworks:</i> Caffe, MXNET, Tensorflow, HM, AVS2, JEM. <i>Github Repo:</i> ☞ https://github.com/codersadis <i>Homepage:</i> ☞ http://www.jiachuanmin.site <i>Google Scholar:</i> ☞ https://scholar.google.com/citations?user=x5Na9n0AAAAJ
HONORS & AWARDS	Best Paper Award of IEEE Multimedia Magazine, 2018 Innovation Scholarship, PKU, 2018 Outstanding Reviewer of JVCIR, 2017 Best Reviewer of IEEE Visual Communication and Image Processing (VCIP), 2017 Best Paper Award of Pacific-Rim Conference on Multimedia (PCM), 2017 Outstanding Reviewer of JVCIR, 2016 1 st prize of Video Big Data Compression Contest of National Graduate Contest on Smart-City Technology. 2016 Excellent Graduation Thesis Award, BUPT, 2015 Excellent Undergraduates, BUPT, 2015 Innovation Scholarship, PKU, 2015 Honorable Mention Winner in Mathematical Contest in Modeling (MCM), 2014