

Chuanmin Jia

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Haidian District, Beijing 100871, P.R.China
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RESEARCH INTERESTS

- Video Compression/Processing
- Deep feature coding
- 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 Circuits and Systems for Video Technology (TCSVT)*, 2018 (Under Review).
- **C. Jia**, S. Wang, X. Zhang, S. Wang, J. Liu and S. Ma, “Content-Aware Convolutional Neural Network for In-loop Filtering in High Efficiency Video Coding, **submitted** to *IEEE Transactions on Image Processing (TIP)*, 2017 (Under Review).
- 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.

Conference Papers

- X. Meng, **C. Jia**, S. Wang, X. Zheng and S. Ma, “Optimized Non-local In-Loop Filter for Video Coding,” **accepted** by *IEEE Picture Coding Symposium (PCS)*, 2018.
- Z. Zhao, S. Wang, **C. Jia**, X. Zhang, S. Ma and J. Yang, “Light Field Image Compression Based on Deep Learning,” **accepted** by *IEEE International Conference on Multimedia & Expo (ICME)*, 2018. (Oral, 15%)
- Y. Wang, X. Fan, **C. Jia**, D. Zhao and W. Gao, “Neural Network Based Inter Prediction for HEVC,” **accepted** by *IEEE International Conference on Multimedia & Expo (ICME)*, 2018. (Poster, 30%)
- **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

- 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 International Conference on Multimedia and Expo (ICME). (since Dec 2017)
- IEEE International Symposium on Multimedia (ISM). (since Aug 2017)
- IEEE Visual Communication and Image Processing (VCIP). (since July 2017)
- Journal of Visual Communication and Image Representation (JVCIR). (since Oct 2016)

Conference Presentations and Invited Talks

- Recent Advances in Machine Learning Based Video Coding, *Video Lab, NYU-Tandon, NY, U.S, Feb. 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**

Languages & Software: C/C++, CUDA, MATLAB, Power Shell, Python, L^AT_EX.
Operating Systems: Mac OS X, Ubuntu Linux, Windows.
Libraries/Frameworks: Caffe, MXNET, Tensorflow, HEVC/H.265, AVS2.
Github Repo: \oslash <https://github.com/codersadis>
Homepage: \oslash <http://www.jiachuanmin.site>
Google Scholar: \oslash <https://scholar.google.com/citations?user=x5Na9n0AAAAJ>

**HONORS &
AWARDS**

Outstanding Reviewer of Journal of Visual Communication and Image Representation, 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 Journal of Visual Communication and Image Representation, 2016
1st 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

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