

Sunil Prasad Jaiswal

Dept. of Electronics and Computer Engineering
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Research Interest 3-D Medical Imaging, Color/Multispectral Imaging, GPU Processing, Computer Vision.

Education Ph.D Candidate in Electronics and Computer Engineering,
Hong Kong University of Science and Technology, Hong Kong
Sept. 2012-Present (CGA 4.0/4.3)

B.Tech in Electronics and Communication Engineering,
The LNM Institute of Information Technology, Jaipur, India.
Aug. 2008- May 2012

Research Experience PhD Candidate in Electronics and Computer Engineering,
The Hong Kong University of Science and Technology, Hong Kong
Supervisor: Prof. Matthew McKay and Prof. Oscar C. Au (IEEE Fellow),
Topic of research: Multispectral/Color Imaging, 3D CT reconstruction, Image Quality Assessment.
Programming Language: C++, Matlab.

Visiting Scholar in Visual Analytics and Imaging (VAI) Lab,
CS dept. at Stony brook University, New York (USA) and SUNY Korea
Supervisor: Prof. Klaus Mueller
Topic of research: 3D CT reconstruction, CT Artifact reduction, GPU Processing
Programming Language: CUDA, C++, and Matlab.
Duration : April'2015 - Jan'2015

Research assistant in Centre for Biomedical Image Analysis (CBIA)
Masaryk University, Brno, Czech Republic
Supervisor: Dr. David Svoboda and Dr. Michael Kozubek
Topic of research: Visible watermarking for 3D Biomedical Images.
Programming Language: C++, and Matlab.
Duration: June'2011 - August'2011.

Internship Student in IIT Jodhpur, India
Supervisor: Dr. Anil Kumar Tiwari
Topic of research: Image Interpolation and Image Compression
Programming Language: C++, and Matlab.
Duration: May'2010 - July'2010 and May'2012 - July'2012.

Awards And Recognition

1. SENG PhD fellowship, HKUST (Sept'2015 - Aug'2016).
2. HKUST Overseas Research Award for Visiting Stony Brook University, New York and SUNY, Korea (March'2015-Sept'2015).
3. Research Postgraduate Scholarship, HKUST (Sept'2012-Aug'2015).
4. Research Travel Award : (1) IEEE ICIP'2016 Phoenix (USA), (2) ICIP'2014, France, (3) ICIP'2013, Australia.
5. Student Travel Award from IEEE SPS Society for ICIP2016, Phoenix (USA).
6. Undergraduate Student **Best Paper Award** in IEEE International Instrumentation and Measurement Technology Conference, 2011 (China).
7. Selected for a **Travel Grant from Dept. Science and Technology, Govt of India** in Young Scientist Category for attending APCCAS-2010, Kuala-lumpur, Malayasia.
8. Won **Student Travel Award** from IEEE Instrumentation and Measurement Society to attend IEEE I2MTC Conference at Graz,Vienna'2012.
9. Received a Travel Grant from **Microsoft Research, India**, for attending IEEE ISCAS-2011, Rio De Janeiro, Brazil.

Conference Attended

1. IEEE International Conference of Image Processing (**ICIP**) 2016, 25-28'September, Phoenix, USA.
2. **AOTULE** forum hosted by University of Melbourne, Australia, 26-28 November, 2014 (Represented School of Engineering, HKUST).
3. IEEE International Conference of Image Processing (**ICIP**) 2014, Paris (France).
4. Student Ambassador for Consul Generals Reception at HKUST, Hong Kong, 14 Oct'2014.
5. **ASPIRE** FORUM hosted by Tsinghua University, Beijing, CHINA, 6-12 July, 2014 (Represented School of Engineering, HKUST). .
6. Hong Kong Electronics Symposium (**HKES**), Hong Kong, 14th April'1014.
7. IEEE International Conference of Image Processing (**ICIP**) 2013, Melbourne (Australia).
8. IEEE International Instrumentation and Measurement Technology Conference (**I2MTC**) 2012, Graz, Austria, 13-16 May.
9. IEEE International Symposium on Circuits and Systems (**ISCAS**) 2011, Rio De Janeiro, Brazil, 15-18 May, 2011.
10. The National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (**NCVPRIPG**), January 15-17, 2010 in Jaipur INDIA.

Computer Skills

1. *Programming: C, C++, Matlab, CUDA*
2. *Others: \LaTeX , OpenCV(Image Processing)*

Journal Publications

1. **Title:** Adaptive Multispectral Demosaicking Based on Frequency-Domain Analysis of Spectral Correlation.
Authors : **Sunil Prasad Jaiswal**, Lu Fang, V. Jakhetiya, J. Pang, K. Mueller, O. C. Au
accepted in IEEE Transactions on Image Processing, 2017. (Impact factor : 3.73)
2. **Title:** Maximum a Posterior and Perceptually Motivated Reconstruction Algorithm: A Generic Framework
Authors : Vinit Jakhetiya, Weisi Lin, **Sunil Prasad Jaiswal**, Sharath C. Guntuku, Oscar C. Au,
accepted in IEEE Transactions of Multimedia (TMM), August'2016. (Impact factor : 2.53)
3. **Title:** A Prediction Based Approach for Reduced-Reference Quality Assessment for Screen Content Images
Authors : Vinit Jakhetiya, Weisi Lin, Qiaohong Li, **Sunil Prasad Jaiswal**.
submitted to IEEE Transactions on Multimedia.
4. **Title:** Just Noticeable Difference for Natural Images using RMS Contrast and Feed-back Mechanism
Authors : Vinit Jakhetiya, Weisi Lin, **Sunil Prasad Jaiswal**, S. C. Guntuku, Oscar C. Au.
submitted to IEEE Transactions on Multimedia.

Conference Publications

1. **Title:** Optimized High-Frequency Based Interpolation For Multispectral Demosaicking.
Authors : **Sunil P. Jaiswal**, Lu Fang, V. Jakhetiya, M. Kuse, Oscar C. Au.
Proc. of IEEE International Conference on Image Processing (ICIP), 25-28 Sept 2016, Phoenix, USA.
2. **Title:** MADR : Metal Artifact Detection and Reduction
Authors : **Sunil Prasad Jaiswal**, Sungsoo Ha, Klaus Mueller.
Proc. of SPIE Medical Imaging, 27 Feb - 03 Mar 2016, San Diego, USA.
3. **Title:** Graph Modelling of 3D Geometric Information For Color Consistency of Multiview Images
Authors : Manohar Kuse, **Sunil Prasad Jaiswal**.
Proc. of IEEE International Conference on Image Processing (ICIP), 27-30 Sept 2015, Quebec, Canada.
4. **Title:** Motion Estimation Via Hierarchical Block Matching and Graph Cut
Authors : Amin Zheng, Yuan Yuan, **Sunil Prasad Jaiswal**, Oscar C. Au.
Proc. of IEEE International Conference on Image Processing (ICIP), 27-30 Sept 2015, Quebec, Canada.
5. **Title:** Observation Model based Perceptually Motivated Bilateral Filter for Image Reconstruction
Authors : Vinit Jakhetiya, Weisi Lin, **Sunil Prasad Jaiswal**, Anil K. Tiwari, Sharath C. Guntuku
Proc. of IEEE Int. Conf. on Digital Signal Processing (DSP), 21-24 July 2015, Singapore
6. **Title:** Exploitation of Inter Color Correlation for Color Image Demosaicing
Authors : **Sunil Prasad Jaiswal**, Oscar C. Au, Vinit Jakhetiya, Yuan Yuan, Haiyan Yang.
Proc. of IEEE International Conference on Image Processing (ICIP), 27-30 Oct 2014, Paris, France.

7. **Title:** Adaptive Predictor Structure based Interpolation for Reversible Data Hiding.
 Authors : **Sunil Prasad Jaiswal**, Oscar C. Au, Vinit Jakhetiya, Yuanfang Guo, Anil K. Tiwari.
 Proc. of International Workshop on Digital-forensics and Watermarking (IWDW), 1-4 Oct. 2014, Taiwan.
8. **Title:**A Comprehensive Study on Digital Image Matting
 Authors : Haiyan YANG, Oscar C. Au, Jin ZENG, Mengqi JI, Yuan YUAN, **Sunil Prasad Jaiswal**.
 Proc. of IEEE China Summit and International Conference on Signal and Information Processing (CHINASIP), 9-12 July 2014, Xi'an, China.
9. **Title:** Fast and efficient intra-frame deinterlacing using observation model based bilateral Filter
 Authors : Vinit Jakhetiya, Oscar C. Au, **Sunil Prasad Jaiswal**, Luheng Jia, Hong Zhang.
 Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 4-9 May 2014, Florence, Italy.
10. **Title:**Symmetrical predictor structure based Integrated lossy, near lossless / lossless coding of images
 Authors : Vinit Jakhetiya, Oscar C. Au, **Sunil Prasad Jaiswal**, Luheng Jia, Gaurav Mittal.
 Proc. of IEEE International Symposium on Circuits and Systems (ISCAS), 1-5 June 2014, Melbourne, Australia.
11. **Title:**Loss- less / near lossless compression using bilateral Filter and symmetrical structure based bias cancellation
 Authors : Vinit Jakhetiya, Oscar C. Au, **Sunil Prasad Jaiswal**, Luheng Jia, Manohar Kuse.
 Proc. of International Symposium on Communications, Control, and Signal Processing, 21-23 May 2014, Athens, Greece.
12. **Title:** Efficient Adaptive Prediction Based Reversible Image Watermarking
 Authors : **Sunil Prasad Jaiswal**, Oscar Au, Vinit Jakhetiya, Yuanfang Guo, Anil K. Tiwari, Kong Yue.
 Proc. of IEEE International Conference on Image Processing (ICIP) 2013, Sept. 15-18, 2013 at Australia.
13. **Title:** An Efficient Two Phase Image Interpolation Algorithm Based Upon Error Feedback Mechanism
 Authors : **Sunil Prasad Jaiswal**, Oscar Au, Vinit Jakhetiya, Juhi Bhadviya, Yuan Yuan, Anil K. Tiwari.
 Proc. of IEEE Workshop on Signal Processing Systems (SIPS) 2013, Oct. 16-18, 2013 at Taiwan.
14. **Title:**Interpolation Based Symmetrical Predictor Structure For Lossless Image Coding.
 Authors : Vinit Jakhetiya, **Sunil Prasad Jaiswal**, Anil Kumar Tiwari, Oscar C. Au
 Proc. of IEEE International Symposium on Circuits and Systems (ISCAS), Seoul (Korea) 2012.
15. **Title:** Bit-Depth Expansion Using Minimum Risk Based Classification
 Authors : Gaurav Mittal, Vinit Jakhetiya, **Sunil Prasad Jaiswal**, Oscar C. Au, Anil Kumar Tiwari.

- Proc. of Visual Communication and Image Processing (VCIP) 27-30 Nov 2012, San Diego, USA.
16. **Title:** An Efficient Two Pass Lossless Invisible Watermaking Algorithm for Natural Images.
 Authors : **Sunil Prasad Jaiswal**, Gaurav Mittal, Vinit Jakhetiya, Anil Kumar Tiwari.
 Proc. of IEEE International Conference on Systems, Signals and Image Processing, IWSSIP 2012, Vienna Austria.
 17. **Title:** Exploitation of Temporal Redundancy for Lossless Video Coding
 Authors : Juhi Bhadviya, **Sunil Prasad Jaiswal**, Vinit Jakhetiya, Anil Kumar Tiwari.
 Proc. of biennial IEEE APCCAS 2012, Dec. 2-5 2012 at Taiwan.
 18. **Title:**A Lossless Image Prediction Algorithm using Slope Estimation and Least Square Optimization.
 Authors : **Sunil Prasad Jaiswal**, Vinit Jakhetiya, Anil Kumar Tiwari
 Proc. of IEEE International Instrumentation and Measurement Technology Conference (*I2MTC*),2012, Graz, Austria.
 19. **Title:** A Low Complex Context Adaptive Image Interpolation Algorithm For Real-Time Applications.
 Authors : **Sunil Prasad Jaiswal**, Vinit Jakhetiya, Ayush Kumar, Anil Kumar Tiwari
 Proc. of IEEE International Instrumentation and Measurement Technology Conference (*I2MTC*),2012, Graz, Austria.
 20. **Title:** Adaptive Predictor Structures for Lossless Compression of Videos.
 Authors : Ashutosh Singla, Anil Kumar Tiwari, **Sunil Prasad Jaiswal**, Vinit Jakhetiya.
 Proc. of Data Compression Conference (DCC), 2012, Snow-Bird USA.
 21. **Title:** An Efficient Image Interpolation Algorithm Based upon the Switching and Self Learned Characteristics of Natural Images,
 Authors : **Sunil Prasad Jaiswal**, Vinit Jakhetiya, Anil Kumar Tiwari.
 Proc. of IEEE International Symposium on Circuits and Systems (ISCAS), 15-18 May 2011, Rio De Janeiro, Brazil.
 22. **Title:**A Novel Predictor Coefficient Interpolation Approach for Lossless Compression of Natural Images,
 Authors : Vinit Jakhetiya, **Sunil Prasad Jaiswal**, Anil Kumar Tiwari.
 Proc. of IEEE International Instrumentation and Measurement Technology Conference (*I2MTC*), 10-12 May 2011,China.
 23. **Title:** A Computationally Efficient Context based Image Interpolation Algorithm for natural images.
 Authors : Vinit Jakhetiya, **Sunil Prasad Jaiswal**, Anil Kumar Tiwari.
 Proc. of IEEE International Instrumentation and Measurement Technology Conference (*I2MTC*), 10-12 May 2011,China.**(Best Student Paper Award)**.
 24. **Title:** A Novel Predictor Coefficient Interpolation Approach For Enhancement Of Spatial Resolution Of Images,
 Authors : Vinit Jakhetiya, **Sunil Prasad Jaiswal**, Anil Kumar Tiwari.
 Proc. of Biennial IEEE APCCAS 2010, Dec. 6-10, 2010 at Kuala-Lumpur, Malaysia.

Reviewer

IEEE TIP, IEEE TCSVT, IEEE SPL.

IEEE ICIP'13, IEEE ICIP'14, IEEE ISCAS'13, IEEE ISCAS'14, IEEE ICASSP'13,
IEEE ICASSP'14, IEEE ICME'13, VCIP'13, VCIP'14.