Ruogu Fang
Assistant Professor

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Position Held

Assistant Professor, School of Computing and Information Sciences — 2014 - Present
Florida International University, Miami, FL

EDUATION

- **Cornell University**, Ithaca, NY. — 2009 – 2014
  PhD in Electrical and Computer Engineering
  Advisors: Tsuhan Chen, Pina C. Sanelli | Jacobs Scholar Fellow

  M.S. in Electrical and Computer Engineering — 2013

  Minor in Computer Science — 2014
  Minor advisor: Noah Snavely

- **University of Hong Kong**, Hong Kong — 2007 - 2008
  Full-time Exchange in Electrical and Communication Engineering
  Advisor: Kenneth Wong | Li & Fung Scholar | A+ for All Courses

- **Zhejiang University**, Hangzhou, China — 2005 - 2009
  B.E. with honors in Information Engineering | Chu Kechen Honors College. Advisor: Lu Yu | Dean's List | Ranking: 1/141

RESEARCH INTERESTS

Medical Image Analysis, Digital Healthcare, Machine Learning, Computer Vision

HONORS & AWARDS

1. **Hsien Wu and Daisy Yen Wu Memorial Award**, in recognition of the excellent progress in the academic program and high potential for a successful academic career (5 awardees out of all graduate students at Cornell University).

2. **Best Paper Award** at the 17th International Conference on Image Processing, 2010. (Top 1 out of 1190, first author publication)

3. **Irwin and Joan Jacobs Fellowship**, Cornell University, awarded to students who exemplify strength and potential in academics, service, and leadership, 2009-2010.

4. **Best PhD Poster Award**, Cornell Engineering Research Conference, 2010

5. **Student Travel Award** at the International Conference on Medical Image Computing and Computer Analysis Intervention (MICCAI) 2014.

6. **Student Travel Award** at the 17th International Conference on Image Processing, 2010.

7. **Cornell ECE Women's Conference Travel Grant** to attend the 15th International Conference on Medical Image Computing and Computer Assisted Intervention, 2012.

8. **Bao-Steel Scholarship**, for outstanding students, 2008.

9. **Li & Fung Scholarship**, 2007-2008.

10. **Dean's List (top 1%),** Zhejiang University, 2005-2008.

11. **First Prize in National Mathematical Olympics**, China, 2001.

TEACHING EXPERIENCE

Instructor
CAP 5610 Introduction to Machine Learning, Graduate Course (Spring 2015) | FIU

Instructor
Computer Vision (Summer 2010) | GRASSHOPR Program | Cornell University

Teaching Assistant
ECE 5670 Digital Communication (Spring 2011) | Cornell University
Instructor: Dr. Salman Avestimehr

PUBLICATIONS

Journal Publications

[**J3**] **TMI'15** Ruogu Fang, Shaoting Zhang, Tsuhan Chen, Pina C. Sanelli. Robust Low-dose CT Perfusion Deconvolution via Tensor Total-Variation Regularization IEEE Transaction on Medical Imaging, 2015. (Accepted)

[**J2**] **MedIA'14** Ruogu Fang, Kolbeinn Karlsson, Tsuhan Chen, Pina C. Sanelli. Improving Low-Dose Blood-Brain Barrier Permeability Quantification Using Sparse High-Dose Induced Prior for Patlak Model. Medical Image Analysis, Volume 18, Issue 6, Pages 866-880, 2014.

[**J1**] **MedIA'13** Ruogu Fang, Tsuhan Chen, Pina Sanelli. Towards Robust Deconvolution of Low-Dose Perfusion CT: Sparse Perfusion Deconvolution Using Online Dictionary Learning. *Medical Image Analysis*, Volume 17, Issue 4, Pages 417-428, 2013. (**Top 25 hottest articles in Medical Image Analysis in 2013 April-June**)

Conference Publications

[**C13**] Ruogu Fang. 4-D Spatio-Temporal MR Perfusion Deconvolution via Tensor Total Variation. International Society for Magnetic Resonance in Medicine Annual Meeting 2015. (ISMRM'15) **Oral**

[**C12**] **Ruogu Fang**, Junzhou Huang, Wen-Ming Luh. A Spatio-Temporal Low-Rank Total Variation Approach For Denoising Arterial Spin Labeling MRI Data. IEEE International Symposium Onbiomedical Imaging: From Nano To Macro, 2015. (ISBI'15)

[**C11**] Menglin Jiang, Shaoting Zhang, **Ruogu Fang**, Dimitris Metaxas. Leveraging Inverted Multi-Index for Scalable Retrieval of Mammographic Masses. IEEE International Symposium on Biomedical Imaging 2015. (ISBI'15)

[**C10**] **Ruogu Fang**, Pina Sanelli, Shaoting Zhang, Tsuhan Chen. Tensor Total-Variation Regularized Deconvolution for Efficient Low-Dose CT Perfusion. MICCAI'14, The 17th Annual International Conference on Medical Image Computing and Computer Assisted Intervention, 2014. (MICCAI'14, **MICCAI Student Travel Award**)

[**C9**] **Ruogu Fang**, Tsuhan Chen, Pina C. Sanelli. Anisotropic Tensor Total Variation Regularization For Low Dose Low CT Perfusion Deconvolution. The 17th Annual International Conference on Medical Image Computing and Computer Assisted Intervention, Workshop on Sparsity Techniques in Medical Imaging, 2014. (MICCAI-STMI'14)

[**C8**] **Ruogu Fang**, Tsuhan Chen, Pina Sanelli. Tissue-Specific Sparse Deconvolution for Low-Dose CT Perfusion. The 16th Annual International Conference on Medical Image Computing and Computer Assisted Intervention, 2013. (MICCAI'13)

[**C7**] **Ruogu Fang**, Andrew C. Gallagher, Tsuhan Chen, Alexander Loui. Kinship Classification by Modeling Facial Feature Heredity. IEEE International Conference on Image Processing, 2013. (ICIP'13) **Oral presentation**

[**C6**] **Ruogu Fang**, Tsuhan Chen, Pina Sanelli. Sparsity-Based Deconvolution of Low-Dose Perfusion CT Using Learned Dictionaries. The 15th Annual International Conference on Medical Image Computing and Computer Assisted Intervention, 2012. Lecture Notes in Computer Science Volume 7510, 2012, pp 272-280. (MICCAI'12)

[**C5**] **Ruogu Fang**, Tsuhan Chen, Pina Sanelli. Sparsity-Based Deconvolution Of Low-Dose Brain Perfusion CT In Subarachnoid Hemorrhage Patients. The 9th IEEE International Symposium on Biomedical Imaging, pp. 872-875, 2012. (ISBI'12) **Oral**

[**C4**] **Ruogu Fang**, Ashish Raj, Tsuhan Chen, Pina C. Sanelli. Radiation dose reduction in computed tomography perfusion using spatial-temporal Bayesian methods. In Proceedings of SPIE Medical Imaging, Volume 8313, Paper #831345, 2012. (SPIE'12)

[**C3**] **Ruogu Fang**, Ramin Zabih, Ashish Raj, Tsuhan Chen. Segmentation of Liver Tumor Using Efficient Global Optimal Tree Metrics Graph Cuts. Abdominal Imaging, International Conference on Medical Image Computing and Computer Assisted Intervention, pp. 51-59, 2011. (MICCAI-AI'11) **Oral presentation**

[**C2**] **Ruogu Fang**, Kevin D. Tang, Noah Snavely, Tsuhan Chen. Towards Computational Models of Kinship Verification. The 17th IEEE International Conference on Image Processing, 2010. Oral presentation. (ICIP'10) **ICIP 2010 Best Paper Award**

[**C1**] **Ruogu Fang**, Joyce Yu-hsin Chen, Ramin Zabih, Tsuhan Chen. Tree-Metrics Graph Cuts For Brain MRI Segmentation With Tree Cutting. IEEE Western New York Image Processing Workshop, pp. 10-13, 2010. (WNYIPW'10) **Oral presentation**

PATENTS

- Ruogu Fang, Leo Grady, Gianluca Paladini. System and Method For Interactive Segmentation On Mobile Devices in a Cloud Computing Environment, Patent Pending, US Application Number: 13/816,970. (Siemens)

RESEARCH SUPPORT

- Funding Agency: Pilot Award, Clinical and Translational Science Center, Weill Cornell Medical College
  Amount: $100,000
  Duration: 08/2014-08/2016

Title: Minimal Radiation Exposure Technology For Acute Stroke Assessment
Principle Investigator: Ajay Gupta
Role: Co-Investigator

- Funding Agency: Seed Grant for Collaborations Between Cornell University-Ithaca and Weill Cornell Medical College Faculty
  Amount: $50,000
  Duration: 06/2014-06/2015
  Title: Learning-Based Low Radiation CT Perfusion for Acute Stroke Diagnosis
  Role: Key Technical Personnel

- Funding agency: National Institute of Neurological Disorders and Stroke (NINDS)
  Amount: $857,520
  Duration: 8/08 – 7/13
  Title: Improving Clinical Outcomes in Aneurysmal Subarachnoid Hemorrhage Using CT Perfusion
  Principle Investigator: Pina C. Sanelli
  Role: Core member

- Funding agency: National Institute of Neurological Disorders and Stroke (NINDS)
  Amount: $54,000
  Duration: 8/10 – 7/11
  Title: To Achieve Reliable Image Reconstruction From Sparse (Low-Dose) CT Perfusion Acquisitions
  Principal Investigator: Pina C. Sanelli
  Role: Core member

ACADEMIC MENTORING

- Sherman Ng, Master of Engineering student, Cornell University, 2011. Thesis: Interactive interface for kinship verification on family photo albums, demo at CVPR'11.

- Jane Tsai, Master of Engineering student, Cornell University, 2011

- Johnny Lai, Master of Engineering student, Cornell University, 2011

PROFESSIONAL SERVICE

Journal Guest Editor

- Special Issue on Sparsity Techniques in Medical Imaging, Computerized Medical Imaging and Graphics

Organizing Committee

– The Second Workshop on Sparsity Techniques in Medical Imaging, Medical Imaging Computing and Computer Assisted Intervention Society (MICCAI) at Boston, MA 2014

Program Committee or Conference Reviewer:

- The IEEE Conference on Computer Vision and Pattern Recognition (CVPR'13)
- International Conference on Computer Vision (ICCV'13)
- International Conference on Image Processing (ICIP'10 - 13)
- International Symposium on Biomedical Imaging (ISBI'14)

Journal Reviewer:

- Medical Image Analysis
- IEEE Transaction on Medical Imaging (TMI)
- IEEE Transactions on Instrumentation & Measurement (TIM)
- Neuroradiology
- Cancer Informatics
- Signal Processing Letter (SPL)
- Multimedia (MM)

Book Reviewer:

– Digital Image Interpretation, Wiley Publisher

Membership:

- American Society of Neuroradiology (ASNR)
- Medical Imaging Computing and Computer Assisted Intervention Society (MICCAI)
- IEEE Signal Processing Society (IEEE SPS)
- The International Society For Optics and Photonics (SPIE)

News Coverage

2012-12 **NewScientist: Facial recognition software spots family resemblance**
See more at: http://www.newscientist.com/article/mg21228424.900-facial-recognition-software-spots-family-resemblance.html#.Um2V95RhscZ

2009-05 **University of Cambridge Official News: Students from 'Cambridge of the East' take part in exchange** - See more at: http://www.cam.ac.uk/news/students-from-cambridge-of-the-east-take-part-in-exchange#sthash.PaRpE8YF.dpuf

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BIOGRAPHY LISTINGS

- Included in Who's Who in America, (2014), Marquis Publication USA.

TALKS

- 2014-09 College of Engineering and Computing, Florida International University
- 2014-09 School of Computing and Information Sciences, Florida International University
- 2014-06 International Conference on Computational Advances in Bio and Medical Sciences (ICCABS), Miami, FL
- 2014-05 Weill Cornell Medical College, NY
- 2014-03 Indiana University, IN
- 2014-02 Florida International University, FL
- 2014-01 Med-X Research Institute of Shanghai Jiao Tong University
- 2014-01 College of Information Science, Zhejiang University
- 2014-01 College of Biomedical Engineering & Instrument Science, Zhejiang University
- 2013-09 The International Conference on Image Processing, Melbourne, Australia
- 2013-06 Xiamen University, Xiamen, China
- 2013-04 The International Symposium on Biomedical Imaging, San Francisco, CA, US
- 2012-04 The International Symposium on Biomedical Imaging, Barcelona, Spain
- 2010-09 The International Conference on Image Processing, Hong Kong
- 2010-11 The IEEE Western New York Image Processing Workshop, Rochester, NY
- 2010-06 Center for Nonlinear Analysis Summer School, Carnegie Mellon University, Pittsburgh, PA.
