Amod Jog

Curriculum Vitae

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Research Interests

Medical image analysis, image synthesis, super-resolution, biological motion analysis

Education

2009–2016 Doctor of Philosophy in Computer Science
The Johns Hopkins University (JHU), Baltimore
Thesis Title: Image Synthesis in Magnetic Resonance Neuroimaging
Advisor: Dr. Jerry L. Prince

2009–2011 Master of Science and Engineering in Computer Science
The Johns Hopkins University (JHU), Baltimore
GPA: 3.87/4

2005–2009 Bachelor of Technology in Computer Science and Engineering
Indian Institute of Technology Bombay (IITB), Mumbai, India
GPA: 8.69/10

Research Experience

2016–2017 Postdoctoral Fellow
Image Analysis and Communications Laboratory

2012–2016 Research Assistant
Image Analysis and Communications Laboratory

2009–2011 Research Assistant
Visual Imaging and Surgical Robotics

2010 Research Intern, Medical Research Group
Intuitive Surgical, Sunnyvale

2008 Research Intern
Rutgers University, Piscataway, NJ

Journal Publications

2017 Chen, M., Carass, A., Jog, A., Lee, J., Roy, S., and Prince, J. L. "Cross contrast multi-channel image registration using image synthesis for MR brain images". In: *Medical Image Analysis* 36, pp. 2–14.

2017 Jog, A., Carass, A., Roy, S., Pham, D. L., and Prince, J. L. "Random forest regression for magnetic resonance image synthesis". In: *Medical Image Analysis* 35, pp. 475–488.

2015 Jog, A., Carass, A., Roy, S., Pham, D. L., and Prince, J. L. "MR image synthesis by contrast learning on neighborhood ensembles". In: *Medical image analysis* 24.1, pp. 63–76.

2015 Mendrik, A. et al. "MRBrainS Challenge: Online Evaluation Framework for Brain Image Segmentation in 3T MRI Scans". en. In: *Computational Intelligence and Neuroscience* 2015, e813696.

2012 Curry, M., Malpani, A., Li, R., Tantillo, T., Jog, A., Blanco, R., Ha, P. K., Califano, J., Kumar, R., and Richmon, J. "Objective assessment in residency-based training for transoral robotic surgery". en. In: *The Laryngoscope* 122.10, pp. 2184–2192.

2012 Kumar, R., Jog, A., Malpani, A., Vagvolgyi, B., Yuh, D., Nguyen, H., Hager, G., and Chen, C. C. G. "Assessing system operation skills in robotic surgery trainees". en. In: *The International Journal of Medical Robotics and Computer Assisted Surgery* 8.1, pp. 118–124.

2012 Kumar, R., Jog, A., Vagvolgyi, B., Nguyen, H., Hager, G., Chen, C. C. G., and Yuh, D. "Objective measures for longitudinal assessment of robotic surgery training". In: *The Journal of Thoracic and Cardiovascular Surgery* 143.3, pp. 528–534.

Conference Publications

2016 Jog, A., Carass, A., and Prince, J. L. "Self Super-Resolution for Magnetic Resonance Images". en. In: *Medical Image Computing and Computer-Assisted Intervention – MICCAI 2016*. Ed. by S. Ourselin, L. Joskowicz, M. R. Sabuncu, G. Unal, and W. Wells. Lecture Notes in Computer Science 9902. DOI: 10.1007/978-3-319-46726-9_64. Springer International Publishing, pp. 553–560.

2016 Roy, S., Chou, Y.-Y., Jog, A., Butman, J. A., and Pham, D. L. "Patch Based Synthesis of Whole Head MR Images: Application To EPI Distortion Correction". en. In: *Simulation and Synthesis in Medical Imaging*. Ed. by S. A. Tsaftaris, A. Gooya, A. F. Frangi, and J. L. Prince. Lecture Notes in Computer Science 9968. DOI: 10.1007/978-3-319-46630-9_15. Springer International Publishing, pp. 146–156.

2016 Zhao, C., Carass, A., Jog, A., and Prince, J. L. "Effects of spatial resolution on image registration". In: vol. 9784, 97840Y–97840Y–9.

2015 He, Q., Roy, S., Jog, A., and Pham, D. L. "An example-based brain MRI simulation framework". In: vol. 9412, 94120P–94120P–8.

2015 Jog, A., Carass, A., Pham, D. L., and Prince, J. L. "Multi-output decision trees for lesion segmentation in multiple sclerosis". In: vol. 9413, pp. 94131C–94131C–6.

2015 Jog, A., Carass, A., Pham, D. L., and Prince, J. L. "Tree-Encoded Conditional Random Fields for Image Synthesis". en. In: *Information Processing in Medical Imaging*. DOI: 10.1007/978-3-319-19992-4_58. Springer International Publishing, pp. 733–745.

2015 Roy, S., Jog, A., Magrath, E., Butman, J. A., and Pham, D. L. "Cerebral microbleed segmentation from susceptibility weighted images". In: vol. 9413, 94131E–94131E–7.

2014 Jog, A., Carass, A., Pham, D. L., and Prince, J. L. "Random forest FLAIR reconstruction from T1, T2, and PD-weighted MRI". In: *2014 IEEE 11th International Symposium on Biomedical Imaging (ISBI)*, pp. 1079–1082.

2014 Jog, A., Carass, A., and Prince, J. L. "Improving magnetic resonance resolution with supervised learning". In: *2014 IEEE 11th International Symposium on Biomedical Imaging (ISBI)*, pp. 987–990.

2014 Roy, S., Carass, A., Jog, A., Prince, J. L., and Lee, J. "MR to CT registration of brains using image synthesis". In: vol. 9034, pp. 903419–903419–8.

2014 Roy, S., He, Q., Carass, A., Jog, A., Cuzzocreo, J. L., Reich, D. S., Prince, J., and Pham, D. "Example based lesion segmentation". In: vol. 9034, 90341Y–90341Y–8.

2013 Jog, A., Roy, S., Carass, A., and Prince, J. L. "Magnetic resonance image synthesis through patch regression". In: *2013 IEEE 10th International Symposium on Biomedical Imaging*, pp. 350–353.

2013 Jog, A., Roy, S., Carass, A., and Prince, J. L. "Pulse sequence based multi-acquisition MR intensity normalization". In: vol. 8669, 86692H–86692H–8.

2013 Roy, S., Jog, A., Carass, A., and Prince, J. L. "Atlas Based Intensity Transformation of Brain MR Images". en. In: *Multimodal Brain Image Analysis*. DOI: 10.1007/978-3-319-02126-3_6. Springer International Publishing, pp. 51–62.

2011 Gao, Y., Sedef, M., Jog, A., Peng, P., Choti, M., Hager, G., Berkley, J., and Kumar, R. "Towards validation of robotic surgery training assessment across training platforms". In: *2011 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pp. 2539–2544.

2011 Jog, A., Itkowitz, B., Liu, M., DiMaio, S., Hager, G., Curet, M., and Kumar, R. "Towards integrating task information in skills assessment for dexterous tasks in surgery and simulation". In: *2011 IEEE International Conference on Robotics and Automation*, pp. 5273–5278.

2009 Jog, A., Joshi, A., Chandran, S., and Madabhushi, A. "Classifying ayurvedic pulse signals via consensus locally linear embedding". English. In: pp. 388–395.

Patents

2015 Jog, A., Roy, S., Carass, A., and Prince, J. L. "Pulse sequence-based intensity normalization and contrast synthesis for magnetic resonance imaging". Pat. US20150016701 A1. U.S. Classification 382/131; International Classification G06T11/00; Cooperative Classification G01R33/5608, G06T11/003.

2014 Kumar, R., Hager, G. D., Jog, A. S., Gao, Y., Liu, M., DiMaio, S. P., Itkowitz, B., and Curet, M. "Method and system for analyzing a task trajectory". Pat. US20140378995 A1. U.S. Classification 606/130; International Classification A61B5/06, A61B19/00; Cooperative Classification A61B34/30, A61B19/2203, A61B2034/107, A61B5/065.

2014 Kumar, R., Hager, G. D., Jog, A. S., and Yuh, D. D. "System and method for the evaluation of or improvement of minimally invasive surgery skills". Pat. US20140287393 A1. U.S. Classification 434/262; International Classification G09B23/28, G09B5/02; Cooperative Classification A61B34/35, G09B23/285, G09B5/02, G09B23/28, A61B2017/00707.

Achievements

- Received the Outstanding Teaching Award from Computer Science, 2012
- Secured an All India Rank of **52** in the Joint Entrance Examination (JEE) 2005 from over 200,000 candidates
- National Talent Search Merit Recipient, 2003

Teaching and Service

Teaching

Fall 2011 **Teaching Assistant**, CS. 464/664 Randomized Algorithms.
Instructor: Dr. S. Rao Kosaraju
- Graduate level class with 25 students
- Teaching, grading, formulating assignments and solutions

Spring 2012 **Teaching Assistant**, CS. 226 Data Structures.
Instructor: Dr. Greg Hager
- Head teaching assistant of a undergraduate level class with 60 students
- Managed a team of 6 course assistants for teaching, grading, assignments and solutions formulation

Service

2015–pre. **Reviewer**, Transactions in Medical Imaging, NeuroImage, Medical Image Analysis, Frontiers in Neuroscience, MICCAI.

2009–2011 **System Administrator and Lab Manager**, Visual Imaging and Surgical Robotics Laboratory.

2009–2010 **Computer Science Representative**, Graduate Representative Organization.

2009–2010 **Indian Graduate Student Association Representative**, Graduate Representative Organization.

2009–2010 **Website Manager**, Indian Graduate Student Association.

2008–2009 **System Administrator**, Vision, Graphics, and Imaging Lab at IITB.

Skills

Languages C, C++, Java, Python, MATLAB

Operating Systems Linux (Debian/Fedora/Ubuntu based distributions), Windows, OS X

Word Prorcessing LaTeX, MS Word

Packages MIPAV, JIST, Slicer, Paraview

Other Interests

Languages Marathi (Native), Hindi (Fluent), English (Fluent), Spanish (Basic), German (Basic)

Interests Squash, Badminton, Yoga, Languages, History