Amod Jog

Curriculum Vitae

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Research Interests

Medical image analysis, neuroimaging, 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*. Lecture Notes in Computer Science 9902. 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*. Lecture Notes in Computer Science 9968. 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*. 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*. 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.

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.

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.

Talks

2015   **SPIE**, Multi-output decision trees for lesion segmentation in multiple sclerosis.
2014   **ISBI**, Improving magnetic resonance resolution with supervised learning.
2014   **ISBI**, Random forest FLAIR reconstruction from T_1, T_2, and P_D-weighted MRI.
2011   **ICRA**, Towards integrating task information in skills assessment for dexterous tasks in surgery and simulation.

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 Professional 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 Procressing	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