William Mullally

January 2007

Computer Science Department
Boston University
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Education

Ph.D in Computer Science
Boston University
Expected July 2007
Dissertation Title: Example-based Algorithms for Non-rigid Medical Image Registration
Advisor: Associate Professor Margrit Betke

M.A. in Computer Science
Boston University
May 2003
Thesis Title: Segmentation and Registration of Nodules in Chest Computed Tomography
Advisor: Assistant Professor Margrit Betke

B.A. in Computer Science and English
Boston College
Awarded with Honors in May 2001

Research Interests

Medical and biomedical image analysis, computer vision, computational biology, bioinformatics, disease and injury analysis, pulmonary physiology, Chiari malformations, statistical learning, and artificial intelligence.

Research Experience

- Research Assistant – Computer Science Research Lab, Boston University.
  Fall 2001 – Present
  Member of the Image and Video Computing Group. Projects: Non-rigid registration of diseased lung images; personalized airway tree generation for study of asthma; example-based similarity measures for image registration; and segmentation of nodules in lung from CT images for purposes of cancer detection.
  Advisors: Margrit Betke and Stan Sclaroff.

- Intern – Siemens Corporate Research.
  May 2006 – August 2006

Projects: Segmentation of lymph nodes from CT images for purposes of cancer detection.
Supervisors: Marie-Pierre Jolly and Kazunori Okada.

- Research Assistant – Massachusetts General Hospital.
  June 2003 – August 2003
  Projects: Segmentation of lung tumors by fast contour propagation.
  Supervisors: Eike Rietzel and George Chen.

- Vision Intern. Intelligent Imaging Systems, Teradyne.
  May 2000 – May 2001
  Projects: Appearance based model for detection of faulty parts in circuit board assembly line; system testing; system documentation.
  Supervisor: Pamela Lipson.

- Research Assistant. Boston College Vision Group, Boston College.
  January 1998 – May 2001
  Computer vision. Projects: automatic detection of a driver in city traffic; face and eye detection using skin and eye sclera color models.
  Advisors: Margrit Betke and James Gips.

Journal Publications

- **W. Mullally**, S. Sclaroff, and M. Betke. "Learning Local Similarity Costs for Non-Rigid Image Registration." In progress.

- **W. Mullally**, M. Betke, and K. Lutchen, "Examining Airway Defects using Personalized Airway Tree Models from Statistical Lung Atlases." In progress.

- **W. Mullally**, M. Betke, and C. Xu, "Spatial Context for Example Driven Image Registration Using Class-Based Joint Intensity Distributions and Joint Distance-Intensity Distributions." In progress.

- **W. Mullally**, M. Betke, J. Wang, and J. P. Ko, "Segmentation of Nodules on Chest Computed Tomography for Growth Assessment." *Medical Physics*, 31(4), pp. 839-848, April 2004.

Conference Publications

- **W. Mullally**, A. Milutinovic, M. Betke, M. Albert, and K. Lutchen "Personalized Airway Trees from a Generative Model, Lung Atlas, and Hyperpolarized Helium MRI." MICCAI 2006 Workshop "From Statistical Atlases to Personalized Models: Understanding Complex Diseases in Populations and Individuals." Copenhagen, Denmark, October 6, 2006. 4 pp.

- **W. Mullally**, M. Betke, C. Bellardine, and K. Lutchen. "Locally Switching Between Cost Functions in Iterative Non-Rigid Registration." Proceedings of the ICCV Workshop on Computer Vision for Biomedical Image Application: Current Techniques and Future Trends, Lecture Notes in Computer Science, 10 pp., Beijng, China, October 2005. Springer Verlag.

- **W. Mullally**, E. Rietzel, G. Chen, N. Choi, and M. Betke. "Fast Segmentation of Pulmonary Tumors by Contour Propagation in 4DCT." 46th Annual Meeting of the American Association of Physicists in Medicine (AAPM 2004), Pittsburgh, PA, July, 2004.

- **W. Mullally**, M. Betke, H. Hong, J. Wang, K. Mann, and J. P. Ko, "Multi-criterion 3D Segmentation and Registration of Pulmonary Nodules on CT: A Preliminary Investigation," International Conference on Diagnostic Imaging and Analysis, ICDIA 2002, pp. 176-181, Shanghai, China, August 2002.

- M. Betke and **W. Mullally**, "Preliminary Investigation of Real-Time Monitoring of a Driver in City Traffic." Proceedings of the IEEE International Conference of Intelligent Vehicles, IV 2000, Dearborn, MI, October 2000.

- M. Betke, **W. Mullally**, and J. Magee, "Active Detection of Eye Scleras in Real Time." Proceedings of the IEEE CVPR Workshop on Human Modeling, Analysis and Synthesis, HMAS 2000, Hitlon Head Island, SC, June 2000.

Teaching Experience

- **Instructor**
  Computer Science Department, Boston University.
  January 2006 – May 2006
  CS112: Introduction To Data Structures (Java).

- **Teaching Fellow**
  Computer Science Department, Boston University.

  August 2004 – December 2004
  CS440/640: Artificial Intelligence taught by Margrit Betke. Designed assignments and portions of tests. Helped students understand material in weekly office hours. Gave several class lectures. Graded assignments and tests. Recognized by computer science department for excellent service.

  July 2003 - August 2003
  CS101: Introduction To Computers taught by Monica Stoica. Taught lab sections in which students gained hands on experience working with the linux file system, Microsoft Word, Powerpoint, Excel, Adobe Photoshop, Dreamweaver, Flash animations, HTML, and PHP. Created portions of midterm and final exams.

- **Grader**
  Computer Science Department, Boston University.

  January 2004 – May 2004
  CS580: Advanced Computer Graphics taught by Stan Sclaroff

  January 2003 – May 2003
  CS585 - Image and Video Computing taught by Margrit Betke. Developed programming problems used to test basic computer vision concepts.

- **Teaching Assistant**
  Computer Science Department, Boston College.
  January 1998 – December 1998
  Graded assignments and held office hours for Computers in Management course, an introduction to computers with an emphasis on applications useful to business school students.

Administrative Experience

- Graduate Student Organization, Boston University
  Treasurer: January 2005 – May 2006
  Computer Science Department Representative: September 2003 – May 2006
  Travel Grant Program Administrator: September 2004 – June 2005

- Undergraduate Research Mentor, Boston University, June 2002 – August 2002

Professional Service

- Reviewer for Peer Reviewed Journals – IEEE Trans. Medical Imaging

- Reviewer for Peer Reviewed Conference Paper – ICIP'04, MICCAI'04, ICIP'05, ICPR'06, MICCAI'06

Awards

- Recognized by the Computer Science Department of Boston University for excellent service as a teaching fellow. January 2004.

References

Margrit Betke, Associate Professor
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