Robert DiPietro

Department of Computer Science
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Research Interests

Machine learning and statistical signal processing, applied primarily to clinical care

Education

09/13 – current **PhD Candidate, Computer Science**
Johns Hopkins University, Baltimore, MD

09/08 – 05/10 **Master of Science, Electrical Engineering**
Northeastern University, Boston, MA

Thesis: "The Detection of Sub-Pixel Objects and Mitigation of False Alarms in Hyperspectral Imagery"

GPA: 4.0 / 4.0

09/05 – 05/10 **Bachelor of Science, Applied Physics and Engineering**, *summa cum laude*
Northeastern University, Boston, MA

GPA: 4.0 / 4.0

Research and Professional Experience

09/13 – current **Johns Hopkins University**, *Graduate Research Assistant / Teaching Assistant*
Advisors: Prof. Gregory Hager, Prof. Austin Reiter, and Prof. Nassir Navab

Focus: Learning representations of video for fine-grained activity recognition

06/10 – 07/13 **MIT Lincoln Laboratory**, *Associate Research Staff*
Advisors: Dr. Dimitris Manolakis and Dr. Gregory Berthiaume

Focus: Chemical warfare agent detection in long-wave hyperspectral imagery

05/09 – 05/10 **Northeastern University**, *Graduate Research Assistant*
Advisors: Prof. Vinay Ingle and Dr. Dimitris Manolakis

Focus: Spatially-unresolved object detection in short-wave hyperspectral imagery

07/08 – 05/09 **Northeastern University**, *Undergraduate Research Assistant*
Advisor: Prof. Donald Heiman

Focus: Magnetic nanoparticle and nanowire characterization

05/07 – 12/07 **iRobot Corporation**, *Engineering Intern*

Designed, drafted, and machined test fixtures for the iRobot Looj robot

Publications

[1] D. Manolakis, S. Golowich, and R. DiPietro. Long-Wave Infrared Hyperspectral Remote Sensing of Chemical Clouds: A focus on signal processing approaches. *IEEE Signal Processing Magazine*, 31(4), 2014.

[2] C. Brett, R. DiPietro, D. Manolakis, and V. Ingle. Efficient Implementations of Hyperspectral Chemical-Detection Algorithms. *Proceedings of SPIE*, 8897, 2013.

[3] R. DiPietro, E. Truslow, D. Manolakis, S. Golowich, and R. Lockwood. False-Alarm Characterization in Hyperspectral Gas-Detection Applications. *Proceedings of SPIE*, 8515, 2012.

[4] R. DiPietro, D. Manolakis, R. Lockwood, T. Cooley, and J. Jacobson. Hyperspectral Matched Filter with False-Alarm Mitigation. *Optical Engineering*, 51(1), 2012.

[5] B. Plouffe, D. Nagesha, R. DiPietro, S. Sridhar, D. Heiman, S. Murthy, and L. Lewis. Thermomagnetic Determination of Fe_3O_4 Magnetic Nanoparticle Diameters for Biomedical Applications. *Journal of Magnetism and Magnetic Materials*, 323(17), 2011.

[6] B. Jugdersuren, S. Kang, R. DiPietro, D. Heiman, D. McKeown, I. Pegg, and J. Philip. Large Low Field Magnetoresistance in $La_{0.67}Sr_{0.33}MnO_3$ Nanowire Devices. *Journal of Applied Physics*, 109(1), 2011.

[7] R. DiPietro, H. Johnson, S. Bennett, T. Nummy, L. Lewis, and D. Heiman. Determining Magnetic Nanoparticle Size Distributions from Thermomagnetic Measurements. *Applied Physics Letters*, 96(22), 2010.

[8] S. Kang, G. Brewer, B. Jugdersuren, R. DiPietro, D. Heiman, A. Buechele, D. McKeown, I. Pegg, and J. Philip. Magnetotransport Properties of Mn-Si-C Based Nanostructures. *Journal of Applied Physics*, 107(10), 2010.

[9] R. DiPietro, D. Manolakis, R. Lockwood, T. Cooley, and J. Jacobson. Performance Evaluation of Hyperspectral Detection Algorithms for Sub-Pixel Objects. *Proceedings of SPIE*, 7695, 2010.

[10] S. Kang, G. Brewer, J. Battogtokh, R. DiPietro, D. Heiman, A. Buechele, D. McKeown, I. Pegg, and J. Philip. Growth and Characterization of Mn_5SiC Nanowires. *Nanoscience and Nanotechnology Letters*, 1(2), 2009.

Teaching Experience

Johns Hopkins University, Baltimore, MD

2015 Fall	Instructor for EN.500.111, HEART: Machine Learning for Surgical Workflow Analysis
2014 Spring	Co-Instructor for EN.600.120, Intermediate Programming
2014 Intersession	Instructor for EN.600.101, MATLAB for Data Analytics

Awards and Honors

2014 **Intuitive Surgical Fellowship (2014–2015), Johns Hopkins University**

2014 **International Exchange Program, Johns Hopkins University and Technical University of Munich**
US-Germany Research Collaboration on Medical Systems Engineering

2013 **Louis M. Brown Engineering Fellowship, Johns Hopkins University**

2012 **Team Award, MIT Lincoln Laboratory**

2009 **Eta Kappa Nu, Northeastern University**
Electrical and Computer Engineering Honor Society

2007 **Sigma Pi Sigma, Northeastern University**
Physics Honor Society