Joseph F. Murray

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Objective: Research position in the field of computer vision, machine learning, neural networks or intelligent systems. Opportunity for publications is desirable. Available for full-time position August 2007.

Education: **University of California, San Diego**.
Ph.D. Electrical and Computer Engineering, September 2005
Thesis: "Visual Recognition, Inference and Coding using Learned Sparse Representations"
University of Oklahoma. B.S. Electrical Engineering, Minor in Physics. May 1998.

Awards: 2002-2005 ARCS Foundation Fellowship. University of California, San Diego.
1998-1999 Powell Foundation Fellowship. University of California, San Diego.
1993-1998 National Merit Scholar. Full scholarship to the University of Oklahoma.

Experience:

2006 – present: **Massachusetts Institute of Technology**, Brain and Cognitive Sciences
Postdoctoral Scholar, Sebastian Seung's Lab. Research in computer vision and neural networks for the automated segmentation and reconstruction of 3-dimensional neural anatomy.

1998 – 2005: **University of California, San Diego,** Electrical and Computer Engineering Department
Graduate student. Research in machine learning, computer vision, statistical neural networks, sparse coding algorithms, and hard-drive failure prediction. Advisor: Ken Kreutz-Delgado.

June 1999 – January 2006: **Scripps Institution of Oceanography,** Integrative Oceanography Division
Researcher. Studied tide range changes over past 100 years in North America, statistical analysis, Matlab coding.

Summer 1997: **University of Pennsylvania,** Center for Sensor Technology
Summer Undergraduate Fellowship in Sensor Technology (SUNFEST)
Implemented learning algorithms for pattern recognition on a parallel neurocomputer.

Selected Publications:

J. F. Murray and K. Kreutz-Delgado. "Visual Recognition and Inference Using Dynamic Overcomplete Sparse Learning", to appear, Neural Computation, 2007 (accepted Nov. 20, 2006).

J. F. Murray and K. Kreutz-Delgado. "Learning Sparse Overcomplete Codes for Images", Journal of VLSI Signal Processing, vol. 45, pp. 97-110, 2006.

J. F. Murray, G. F. Hughes and K. Kreutz-Delgado. "Machine Learning Methods for Predicting Failures in Hard Drives: A Multiple-Instance Application", Journal of Machine Learning Research, vol. 6, 783-816, 2005.

K. Kreutz-Delgado, J. F. Murray, B. D. Rao, K. Engan, T.-W. Lee and T. J. Sejnowski, "Dictionary Learning Algorithms for Sparse Representation", Neural Computation, vol. 15, pp 349-396, 2003.

J. F. Murray and K. Kreutz-Delgado. "Sparse Image Coding Using Learned Overcomplete Dictionaries", IEEE International Workshop on Machine Learning for Signal Processing (MLSP 2004), Sep. 2004.

G. F. Hughes, J. F. Murray, K. Kreutz-Delgado and C. Elkan, "Improved Disk-Drive Failure Warnings", IEEE Transactions on Reliability, vol. 51, pp. 350-357, Sep. 2002.