

Benjamin John Sapp

CONTACT INFORMATION

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RESEARCH INTERESTS

Computer Vision: Human pose estimation, face detection/recognition/tracking, TV and movie understanding
Machine Learning: Structured prediction, weakly-supervised learning

EDUCATION

Ph.D., Computer and Information Science, (expected May 2012)
University of Pennsylvania

- 3.96/4.00 GPA
- Advisor: Ben Taskar
- Working thesis title: Efficient Human Pose Estimation with Higher-order Image Information

M.S., Computer Science, March 2007
Stanford University

- 3.73/4.00 GPA
- Research guidance: Andrew Ng, Gary Bradski
- Specialization: Artificial Intelligence

B.Eng., Computer Engineering, May 2005
University of Illinois, Urbana-Champaign

- 3.63/4.00 GPA
- Minor in Mathematics
- James Scholar Engineering honors program

INVITED TALKS

- Max Planck Institute for Informatics. Saarbruecken, Germany, November 2011.
- Max Planck Institute for Intelligent Systems. Tuebingen, Germany, November 2011.
- Carnegie Mellon University Robotics Institute. Pittsburgh, PA, January 2012 (expected).

REFEREED
CONFERENCES AND
JOURNALS

- Sapp B., Weiss D., and Taskar B. Parsing Human Motion with Stretchable Models. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2011. Oral.
- Cour T., Sapp B., and Taskar B. Learning from Partial Labels. *Journal of Machine Learning Research (JMLR)*. 2011.
- Sapp B., Weiss D., and Taskar B. Sidestepping Intractable Inference with Structured Ensemble Cascades. *Neural Information Processing Systems (NIPS)*. 2010.
- Sapp B., Toshev A., and Taskar B. Cascaded Models for Articulated Pose Estimation. *European Conference on Computer Vision (ECCV)*. 2010. Oral.
- Sapp B., Jordan, C., and Taskar B. Adaptive Pose Priors for Pictorial Structures. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2010.
- Cour T., Sapp B., Nagle, A., and Taskar B. Talking Pictures: Temporal Grouping and Dialog-Supervised Person Recognition. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2010.
- Cour T., Sapp B., Jordan, C., and Taskar B. Learning From Ambiguously Labeled Images. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. 2009.
- Sapp B., Saxena A., and Ng, A. A Fast Data Collection and Augmentation Procedure for Object Recognition. *Association for the Advancement of Artificial Intelligence (AAAI)*. 2008.
- Gould S., Arfvidsson J., Kaehle A., Sapp B., Meissner M., Bradski G., Baumstarck P., Chung S., Ng, A. Peripheral-Foveal Vision for Real-time Object Recognition and Tracking in Video. *International Joint Conference on Artificial Intelligence (IJCAI)*. 2007.

NOT REFEREED

- Sapp B., Chaudhury R., Yu X., Singh G., Perera I., Ferraro F., Tzoukermann E., Kosecka J., Neumann J. Recognizing Manipulation Actions in Arts and Crafts Shows using Domain-Specific Visual and Textual Cues. VECTaR 2011, in conjunction with ICCV.
- Sapp B., Randomized Algorithms for Low-Rank Matrix Decomposition. Written Preliminary Examination, University of Pennsylvania. 2011
- Benjamin Sapp, Wei Zhang, Bogdan Georgescu, Simone Prummer and Dorin Comaniciu. Method and System for Detection of Contrast Injection in Fluoroscopic Image Sequences. US Patent US12/231,770. September 2008.
- Tzoukermann E., J. Neumann, J. Kosecka, C. Fermuller, I. Perera, F. Ferraro, B. Sapp, R. Chaudhry and G. Singh. Language Models for Semantic Extraction and Filtering in Video Action Recognition. AAAI Workshop on Language-Action Tools for Cognitive Artificial Agents. August 2011.
- Gould, S., Sapp, B., Quigley, M., Ng, A. Peripheral-Foveal Vision for Real-time Object Recognition and Tracking in Video. *Neural Information Processing Systems (NIPS)*. 2006.

PROFESSIONAL
EXPERIENCE

Siemens Corporate Research, *Temporary Technical Employee*, Summer 2007
Princeton, NJ

- Used computer vision techniques to register x-ray videos of human hearts and detect the location and time of contrast injection.
- Developed in C++ using Microsoft Visual Studio and SourceSafe, as well as pro-

- totyping in MATLAB.
- Submitted US patent application, “Method and System for Detection of Contrast Injection in Fluoroscopic Image Sequences.”

Intel Corporation, *Graduate Technical Intern*, Summer 2006
Santa Clara, CA

- Applied the distributed programming framework MapReduce to computer vision algorithms.
- Developed generic computer vision MapReduce C++ library for Windows and Linux platforms.
- Presented poster at internal Intel research conference, “MapReduce for Machine Learning on Multi-core”.

ACADEMIC
EXPERIENCE

Reviewer for

JMLR11, PAMI11, NIPS{08,09,10,11}, IJCAI09, AISTATS11, CVPR{11,12}, ICML11, ECCV10, ICCV11

Course Instructor, *Intelligent Game Agents*, Fall 2011
University of Pennsylvania

Course revolves around the annual Google AI challenge. Primarily a programming-based course, lectures focus on basic AI tools to help improve students’ autonomous team of agents. Topics covered: search, genetic programming, reinforcement learning, supervised machine learning. The goal of this course is to give students a practitioner’s expertise in AI tools and to pique their curiosity of AI research.

Teaching Assistant, *Machine Learning*, Fall 2008
University of Pennsylvania

- Received Teaching Practicum Award, given “in recognition of exceptional work, dedication, and enthusiastic attitude in the performance of teaching assistant duties.”
- Led 2 other TAs for 70+ students. Gave lectures, designed homework and exam questions and programming assignments.

Teaching Assistant, *Artificial Intelligence* (graduate level), Fall 2007
University of Pennsylvania

Research Assistant, Spring 2007
Stanford University

- Paid research assistantship after graduation from Masters program.
- Developed real-time object recognition system using Adaboost and visual-cortex inspired features for 10 common office objects, for the STanford AI Robot (STAIR) project.

Teaching Assistant, *Operating Systems*, Fall 2005, Winter 2006, Winter 2007
Stanford University

TECHNICAL SKILLS Programming: MATLAB, C, C++, Java, Python, Perl
Applications: Microsoft Office, Microsoft Visual Studio, Adobe Photoshop, L^AT_EX, SVN, comfortable using and developing in MS Windows and Unix/Linux environments.

REFERENCES Available upon request