

Pedro F. Felzenszwalb
Assistant Professor
Department of Computer Science
University of Chicago

Mailing address:
1100 East 58th Street
Chicago, IL 60637
email: pff@cs.uchicago.edu
office: (773) 834-4545
web: <http://people.cs.uchicago.edu/~pff>

Education

Ph.D. in Computer Science. Massachusetts Institute of Technology, 2003.
Thesis: Representation and Detection of Shapes in Images.
Advisor: W. Eric. L. Grimson.
M.S. in Computer Science. Massachusetts Institute of Technology, 2001.
Thesis: Object Recognition with Pictorial Structures.
Advisor: W. Eric. L. Grimson.
B.S. in Computer Science. Cornell University, 1999.

Professional Experience

Assistant Professor, Department of Computer Science, University of Chicago, 2004-present.
Postdoctoral Fellow, Department of Computer Science, Cornell University, 2003-2004.
Internship at Xerox PARC, summers of 1997 and 1998.

Professional Activities

Area chair, European Conference on Computer Vision (ECCV), 2008.
Area chair, IEEE International Conference on Computer Vision (ICCV), 2007.
Program committee, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2004, 2005, 2006, 2007.
Program committee, 1st International Workshop on Computer Vision Applications for Developing Regions (in conjunction with ICCV), 2007.
Co-organizer and presenter: Tutorial on Discrete Optimization Methods in Computer Vision at the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2005.
Regular reviewer for the IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI) and the International Journal of Computer Vision (IJCV).

Teaching

Computer Vision. University of Chicago, Fall 2005, 2006, Spring 2008.
Theory of Algorithms. University of Chicago, Winter 2006, 2007, 2008.
Introduction to Computer Science 2. University of Chicago, Winter 2005, 2006, 2007.
Introduction to Programming for the WWW II. University of Chicago, Spring 2005.
Topics AI: Computer Vision. University of Chicago, Fall 2004.

Grants and Awards

NSF CAREER Award 0746569. Project title: Object Recognition with Hierarchical Models. Estimated: \$449,864 over 5 years (March 2008 - February 2013). Amount awarded to date: \$269,316 for 3 initial years.

NSF Award 0534820. Project title: The Generalized A* Architecture for Perceptual Systems. Amount awarded: \$204,110 over 3 years (March 2006 - February 2009).

Best contributed paper at the Mini-Symposium on Machine Understanding of People and Their Responses, 2005. Opto-Electronics Committee of the Rank Prize Funds.

Best poster award at the IEEE Conference on Computer Vision and Pattern Recognition 2004.

Journal Publications

P. Felzenszwalb and R. Zabih. Discrete Optimization Methods in Computer Vision. Submitted.

L. Babai and P. Felzenszwalb. Computing Rank Convolutions with a Mask. Submitted.

P. Felzenszwalb and D. McAllester. The Generalized A* Architecture. Journal of Artificial Intelligence Research (JAIR), Volume 29, Pages 153-190, May 2007.

P. Felzenszwalb and D. Huttenlocher. Efficient Belief Propagation for Early Vision. International Journal of Computer Vision (IJCV), Vol. 70, No. 1, Pages 41-54, October 2006.

P. Felzenszwalb. Representation and Detection of Deformable Shapes. IEEE Transactions of Pattern Analysis and Machine Intelligence (PAMI), Vol. 27, No. 2, Pages 208-220, February 2005.

P. Felzenszwalb and D. Huttenlocher. Pictorial Structures for Object Recognition. International Journal of Computer Vision (IJCV), Vol. 61, No. 1, Pages 55-79, January 2005.

P. Felzenszwalb and D. Huttenlocher. Efficient Graph-based Image Segmentation. International Journal of Computer Vision (IJCV), Vol. 59, No. 2, Pages 167-181, September 2004.

Conference Publications

P. Felzenszwalb and D. McAllester and D. Ramanan. A Discriminatively Trained, Multiscale, Deformable Part Model. To appear in IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2008.

P. Felzenszwalb and J. Schwartz. Hierarchical Matching of Deformable Shapes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2007.

P. Felzenszwalb and D. McAllester. A Min-Cover Approach for Finding Salient Curves. IEEE Workshop on Perceptual Organization in Computer Vision (in conjunction with CVPR), 2006.

D. Crandall, P. Felzenszwalb and D. Huttenlocher. Spatial Priors for Part-Based Recognition using Statistical Models. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 10-17, 2005.

P. Felzenszwalb and D. Huttenlocher. Efficient Belief Propagation for Early Vision. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 261-268, 2004.

P. Felzenszwalb, D. Huttenlocher and J. Kleinberg. Fast Algorithms for Large-State-Space HMMs with Applications to Web Usage Analysis. Neural Information Processing Systems (NIPS), 2003.

P. Felzenszwalb. Representation and Detection of Deformable Shapes. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 102-108, 2003.

P. Felzenszwalb. Learning Models for Object Recognition. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 1056-1062, 2001.

T. Darrel, D. Demirdjian, N. Checka and P. Felzenszwalb. Plan-View Trajectory Estimation with Dense Stereo Background Models. International Conference on Computer Vision (ICCV), Pages 628-635, 2001.

P. Felzenszwalb and D. Huttenlocher. Efficient Matching of Pictorial Structures. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 2066-2073, 2000.

P. Felzenszwalb and D. Huttenlocher. Recognizing Flexible Objects. IEEE Workshop on Graph Algorithms and Computer Vision (in conjunction with ICCV), 1999.

D. Huttenlocher, P. Felzenszwalb and W. Rucklidge. Digipaper: A Versatile Color Document Image Representation. International Conference on Image Processing (ICIP), Pages 219-223, 1999.

P. Felzenszwalb and D. Huttenlocher. Image Segmentation Using Local Variation. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Pages 98-104, 1998.

Other Publications

P. Codenotti and P. Felzenszwalb. 2D Min-Filters with Polygons. 17th Fall Workshop on Computational and Combinatorial Geometry. 2007.

D. Crandall, P. Felzenszwalb and D. Huttenlocher. Object Recognition by Combining Appearance and Geometry. In Towards Category-Level Object Recognition. LNCS, Vol. 4170, 2006.

P. Felzenszwalb and D. Huttenlocher. Distance Transforms of Sampled Functions. Cornell Computing and Information Science, Technical Report TR2004-1963.

P. Felzenszwalb. Representation and Detection of Shapes in Images. Ph.D. thesis. MIT Artificial Intelligence Laboratory, Technical Report 2003-016.

P. Felzenszwalb. Object Recognition with Pictorial Structures. Master's thesis. MIT Artificial Intelligence Laboratory, Technical Report 2001-002.

P. Felzenszwalb and D. Huttenlocher. Efficiently Computing a Good Segmentation. DARPA Image Understanding workshop, 1998.

Invited Talks

Models and Algorithms for Parsing Images.
NIPS workshop: The Grammar of Vision, December 2007.

Hierarchical Models for Shape Recognition.
- CMU VASC Seminar, November 2007.
- Workshop on Geometry and Statistics of Shape Spaces, SAMSI, July 2007.

Hierarchical Matching of Deformable Shapes.
- Harvard University, April 2007.
- MIT, April 2007.
- Brown University, April 2007.

A Hierarchical Representation for Matching Deformable Shapes.
Workshop on Category-Level Object Recognition, Siracusa, Italy, September 2006.

Representation and Detection of Deformable Shapes.
Workshop on Mathematics and Image Analysis, Paris, France, September 2006.

Deformable Templates.
Visual Learning and Recognition Workshop, IMA, 2006.

A Global Model and Algorithm for Finding the Curves in an Image.
University of Illinois at Urbana-Champaign, November 2005.

Representation and Detection of Shapes in Images.
- Johns Hopkins University, October 2005.
- Cornell University, April 2004.
- University of Illinois at Urbana-Champaign, March 2004.
- University of Chicago, March 2004.

Pictorial Structures for Object Recognition.

Mini-Symposium on Machine Understanding of People and Their Responses.
Organized by the Rank Prize Funds, Grasmere, UK, February 2005.

Learning Models for Object Recognition with the Hausdorff Distance.
Cornell University, AI Seminar, February 2004.

Representation and Detection of Non-rigid Objects.
UC Berkeley, Computer Vision Seminar, 2003.

Efficient Graph-based Image Segmentation.
ALADDIN Workshop on Graph Partitioning in Vision and Machine Learning, CMU January 2003.

Learning Models for Object Recognition.
MIT AI Lab Student Seminar, 2001.

Computer Vision.
MIT Applied Mathematics Student Seminar, May 2001.

Efficient Matching of Pictorial Structures.
Siemens Research, 2000.

Efficiently Computing a Good Segmentation.
DIMACS Workshop on Graph Theoretic Methods in Computer Vision, May 1999.

Patents

Method and apparatus for image processing employing image segmentation using tokenization.
W. Rucklidge, D. Huttenlocher, P. Felzenszwalb. US Patent No. 6,295,371. September, 2001.

Advising

Masters Thesis Advisor

Paolo Codenotti. Two-Dimensional Min-Filters with Polygons. University of Chicago, 2006.

Masters Thesis Committee

Hung-Wu Wu. Handwriting Recognition with Elementary Geometric and Algorithmic Methods. University of Chicago, 2006.

Ph.D. Thesis Committee

Jingbin Wang. Object Segmentation with Shape Constraints. Boston University, 2007 (external member).

Xiaofei He. Locality Preserving Projections. University of Chicago, 2006.

Elliot Bernstein. Statistical Models for Object Classification and Detection. University of Chicago, 2006.

Current Ph.D. Students

Alexandra Shapiro, 2006-present.

Ross Girshick, 2007-present.

Undergraduate Students

Gabriel Bender, 2006-present.

Joshua Schwartz, 2005-2007.

Trevor Smith, 2005-2006.

Alexandra Shapiro, 2006.