

Curriculum Vitae
JACOB FELDMAN

Department of Psychology
Center for Cognitive Science
Rutgers University - New Brunswick
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Current Position

Professor, Dept. of Psychology, Center for Cognitive Science, Rutgers University, 2007-.

Previous Positions

Associate Professor, Dept. of Psychology, Center for Cognitive Science, Rutgers University, 2001-2007.

Assistant Professor, Dept. of Psychology, Center for Cognitive Science, Rutgers University, 1995-2001.

Research Assistant Professor, Center for Cognitive Science, Rutgers University (1992-1995)

Lecturer, Dept. of Psychology, Rutgers University (1992-1995)

Education

Massachusetts Institute of Technology, Ph.D. in Cognitive Science, September 1992

Thesis: Perceptual Categories and World Regularities

Advisor: Prof. Whitman Richards

Massachusetts Institute of Technology, M.S. in Brain & Cognitive Sciences, September 1990

Thesis: Perceptual Decomposition as Inference

Advisor: Prof. Steven Pinker

Harvard College, A.B Magna cum Laude in Psychology & Social Relations, June 1986

Thesis: The Representation of Motor Programs

Advisor: Prof. Stephen Kosslyn

Research Interests

Visual perception and concept learning, focusing on the development of mathematical and computational models of human perceptual and cognitive functions. Principal areas of interest include perceptual organization and grouping; representation and categorization of shape; mathematical models of concept learning; and theoretical foundations of perception.

Awards

Troland Research Award, National Academy of Sciences, 2005

George Miller award for best article in general psychology, American Psychological Association, Division 1, 2002 (for "Minimization of Boolean complexity in human concept learning" *Nature*, 407, 630-633, 2000)

National Science Foundation "CAREER" award, 1999

National Science Foundation Graduate Fellow in Psychology, 1987-1990

Harvard College Scholar, 1983-1986

Professional Activities

Member, Program Committee, Cognitive Science Society Conference, 2006 -.

Ad Hoc Member, Cognition and Perception Study Section, N.I.H., 2006, 2008.

Member, Program Committee, CVPR (I.E.E.E. Conference on Computer Vision and Pattern Recognition), 2004 - .

Member, Editorial Board, *Cognition* (journal).

Member, Program Committee, Second Workshop on Perceptual Organization in Computer Vision, Sept. 1999.

Member, Program Committee, I.E.E.E. Workshop on Perceptual Organization in Computer Vision, June, 1998.

Member, Psychonomic Society

Member, Vision Sciences Society

Member, Program Committee, First International Workshop on Semiotic Analysis and Design of Intelligent Systems, March, 1997.

Chair, Appeals Committee, Dept. of Psychology, Rutgers University

Member, Graduate Faculty in Psychology, Rutgers University

Member, Editorial Board, Rutgers University Center for Cognitive Science Technical Report Series

Reviewer. **Granting agencies:** National Institutes of Health (Cognition and Perception Study Section), National Science Foundation, Air Force Office of Sponsored Research, Alzheimer's Association.

Journals: *Cognition, Cognitive Science, Perception, Perception & Psychophysics, Proceedings of the National Academy of Sciences, Psychological Review, Vision Research, Computer Vision and Image Understanding, I.E.E.E. Pattern Analysis and Machine Intelligence.* **Conferences:** I.E.E.E. Conference on Computer Vision and Pattern Recognition, Neural Information Processing Systems; etc.

Grants

NIH (NEI) R01 021494, "An integrated probabilistic framework for shape and surface interpretation" (joint with Manish Singh), \$800,000 (direct costs)/4 years, 2011-2015. Role: Principal Investigator.

NIH (NEI) R01 EY015888, "The Formation of Visual Objects," \$450,000 (direct costs)/3 years, 2005-2008 (extended, 2010). Role: Principal Investigator.

NSF EITM-0339062, "Minimization of Complexity in Human Concept Learning", \$170,000/3 years, 2004-2007 (extended to 2008). Role: Principal Investigator.

"IGERT: Interdisciplinary Training in Perceptual Science," \$2,880,406/5 years, 2006-2010. Role: Co-PI.

NSF "CAREER" award, SBR 9875175, "The Logic of Grouping and Perceptual Organization", \$324,497/5 years, 1999-2004. Role: Principal Investigator.

Rutgers University Information Sciences Council Pilot project Award ("Vision-Equipped Agents for the Disabled", \$30,470/1 year, 1999). Role: Co-PI.

NRSA (NIH) Training Grant (MH19975, T32, "Visual Perception and Language", \$504,838/5 years, 1998-2003). Role: Training Associate.

Teaching

Graduate Coordinator, Cognitive Area, Dept. of Psychology, Rutgers University 2006 - .

Courses taught (all in the Dept. of Psychology, Rutgers University, except where noted):

Undergraduate:

Psychology 305 "Cognition" (designed course & computer-based labs), Spring 1994 - present

Psychology 201 "Principles of Cognitive Science," Fall 1997

Psychology 302 "Sensation and Perception", Spring 1993

Guest lecturer, Cognitive Science 201 “Cognitive Science : A Multi-disciplinary Introduction”, 1998–present.

Guest lecturer, “Creativity in Science”, Dean’s seminar, 1997–2002.

Numerous undergraduate research projects (Independent Study in Psychology, Independent study in Cognitive Science), 1993–present

Graduate:

Research design and analysis (Introduction to Statistics), Fall, 2008; Fall, 2011.

Concepts and Thought (seminar on concepts and categorization), Fall, 2005.

Computational Cognition (introductory graduate level course on the theoretical basis of the computational study of the mind), 2001, 2002, 2004, 2007, 2010.

Visual Cognition (seminar on higher-level vision, including shape, perceptual grouping, and perceptual organization), Fall, 1996.

Learning and Categorization (seminar on human concept learning and mental representation of categories), Spring, 1999.

Guest lecturer, *Proseminar in Cognitive Science*, Center for Cognitive Science, 1996–present.

Independent study in mathematical techniques in psychology (student: Lissa Galluccio), 1999.

Supervised Certificates in Cognitive Science (Ali Shokoufandeh, 2000; Yakov Keselman, 2002).

Supervised undergraduate honors’ theses:

Mark Balaban (1999)

Dan Veksler (1999)

Served on Master’s Committees:

Jong-ho Nam (1995), James McGowan (1995), Wei Zhang (1996; Biomedical Engineering), Dan Bahcall (1996), David Melcher (1997), Patrice Tremoulet (1997), Brian Scholl (1997), Dhanraj Vishwanath (1999), Janet Schwartz (1999), Kai Zimmermann (1999), Monika Krishan (2004) Dana Chesney (2005) Kristina Denisova (2006) Shalin Shah (2007)

Served on Ph.D. Committees:

James Biesaw (1997), James McGowan (1997), Andrew Griffiths (1998), Dan Bahcall (1999), Brian Scholl (1999), Kai Zimmermann (2001), David Melcher (2001), Dhanraj Vishwanath (2002), Bethany Weber (2005) Dana Chesney (2009)

Supervised M.A.s:

Elan Barenholtz (2003) *Perceptual comparisons within and between object parts: evidence for a single-part superiority effect.*

David Fass (2004) *Categorization under complexity: a unified MDL account of human learning of regular and irregular categories.*

Cordelia Aitkin (2004) *Complexity and Subjective Difficulty of Categories Defined over Objects with Three-Valued Features.*

Erica Briscoe (2005) *Effects of conceptual complexity on learning strategies.*

Sung-Ho Kim (2008) *Globally inconsistent figure/ground induced by a negative part.*

John Wilder (2008) *Is human shape categorization based on natural shape statistics?*

Pete Pantelis (2009) *The Interpretation of Intentionality from Dynamic Scenes.*

Seha Kim (2011) *The influence of axiality on figure/ground assignment*

Supervised Ph.D.s:

Patrice D. Tremoulet (2000): *Inferring animacy from motion, form, and context cues*

Elan Barenholtz (2004): *What the deforming contour tells us about shape*

David Fass (2005): *Human sensitivity to mutual information*

Erica Briscoe (2008): *Shape skeletons and shape similarity*

Cordelia Aitkin (2009): *Discretization Of Continuous Features By Human Learners*

Sung-ho Kim (2011): *The effects of amodal completion and perceived causality on apparent motion*

Graduate students currently supervised:

Vicky Froyen, Seha Kim, Aaron Kheifets (co-supervised), Peter Pantelis, John Wilder

Supervised undergraduate research assistants, Fall 1988–Summer 1989, Massachusetts Institute of Technology

Teaching Assistant and Laboratory Instructor, Laboratory Methods and Statistics for Cognitive Science (Instructor: Steven Pinker), Spring 1989, Massachusetts Institute of Technology

Teaching Assistant, Introduction to Psychology (Instructor: Jeremy Wolfe), Fall 1987, 1988, Massachusetts Institute of Technology

Research Assistant in Cognitive Psychology for Prof. Stephen Kosslyn, Fall 1983–Summer 1986, Harvard University

Talks and Presentations

"Explaining" a shape by estimating its generating skeleton. Invited talk, First International Workshop on Shape Perception in Human and Computer Vision, Marseille, France, October, 2008.

Towards a principled account of the mental representation of shape. Invited talk, Dept. of Cognitive Science, Johns Hopkins University, March, 2008.

Shape, structure and skeletons. Invited talk, IGERT Student Research Symposium 2007, Carnegie Mellon University, June, 2007.

Simple heads in a complex world. Invited talk, Symposium in honor of Roger Shepard, Cognitive Science Society Conference, Vancouver, July, 2006.

Skeletons in the mist: local and global influences in the representation of shape. Colloquium, Neural and Cognitive Sciences, University of Maryland, April, 2006.

Skeletons in the mist: local and global influences in the representation of shape. Colloquium, Dept. of Cognitive and Linguistic Sciences, Brown University, April, 2006.

Parts and processes: local and global mechanisms in the representation of shape. Colloquium, Dept. of Brain and Cognitive Sciences, University of Rochester, May, 2005.

Detecting simple patterns in featural data. Invited talk, IPAM workshop on Probabilistic Models of Cognition: The Mathematics of Mind. Los Angeles, January 2005.

Conceptual complexity and concept learning. Colloquium, Dept. of Cognitive and Linguistic Sciences, Brown University, Providence, RI, April, 2003.

Conceptual complexity and concept learning. Colloquium, Dept. of Brain and Cognitive Sciences, M.I.T., February, 2003.

Simplicity and complexity in human concept learning. Invited Address (2002 George Miller Award address), American Psychological Association Meeting, Chicago, August, 2002.

Origins of visual "objects" in the early computation of spatial relations. Colloquium, Dept. of Psychology, University of Pennsylvania, January, 2002.

Minimal models and MDL. Invited comments, workshop on Minimal Description Length: Developments in Theory and New Applications, NIPS, December, 2001.

Simplicity and complexity in human concept learning. Presented at the Meeting of the Psychonomic Society, New Orleans, Louisiana, November, 2000.

Bayesian contour integration. Invited talk, Workshop on Perceptual Grouping and 3-D object perception: Psychophysics and Bayesian modelling." Leuven, Belgium, October, 2000.

Formal connections between Simplicity and Likelihood principles: the spectrum from Bayes to Occam. Invited talk, Workshop on Perceptual Grouping and 3-D object perception: Psychophysics and Bayesian modelling." Leuven, Belgium, October, 2000.

Simplicity and complexity in human concept learning. Invited talk, Dept. of Psychology, UCLA, June, 2000.

Bayesian contour segmentation. Presented at the conference of the Association for Research in Vision and Ophthalmology (ARVO); Fort Lauderdale, FL, May, 1999.

Structure in mental shape spaces. Colloquium, NECI, Princeton, NJ, September, 1998.

Inference of a virtual curve from patterns of dots. Presented at the conference of the Association for Research in Vision and Ophthalmology (ARVO); Fort Lauderdale, FL, May, 1998.

The role of the "object hypothesis" in perceptual grouping. Paper presented at the *Fifth annual pre-psychonomics workshop on Object Perception and Memory (OPAM)*; Philadelphia, PA, November, 1997.

The logic of perceptual grouping. Colloquium, Dept. of Brain and Cognitive Sciences; University of Rochester, Rochester, NY, April, 1996.

Grouping as regularity-finding, NECI Vision Workshop; Princeton, NJ, March, 1995.

Qualitative object categories. Paper presented at the *Workshop on Functionality in Object Recognition*; Harper's Ferry, WV, August, 1993.

Perceptual categories. Invited talk, Ecole des Hautes Etudes des Sciences Sociales; Paris, France, June, 1993.

Causal models of dot groupings. Paper presented at the *DIMACS Workshop on Partitioning Data Sets: With Applications to Psychology, Computer Vision, and Target Tracking*; New Brunswick, NJ, April, 1993.

Perceptual categories and Bayesian inference. Remarks given at the *Workshop on New Directions in Image Understanding: Merging Psychophysics and Computation*; Chatham MA, January, 1993.

Perceptual categories. Colloquium, Dept. of Psychology, Columbia University; New York, NY, December, 1992.

Constructing perceptual categories. Paper presented at the *I.E.E.E Conference on Computer Vision and Pattern Recognition*; Champagne-Urbana, IL, June, 1992.

Force dynamics of tempo change in music. Paper presented at the *Second International Conference on Music Perception and Cognition*; Los Angeles, CA, February, 1992.

Perceptual categories and world regularities. Colloquium, Rutgers University Center for Cognitive Science, Rutgers University; New Brunswick, NJ, February, 1992.

Constructing perceptual categories. Colloquium, Dept. of Electrical Engineering, Yale University; New Haven, CT, December, 1991.

Perceptual simplicity and modes of structural generation. Paper presented at the *Thirteenth Annual Conference of the Cognitive Science Society*; Chicago, IL, August, 1991.

Shape from rotation. Paper presented at the *Annual Meeting of the Eastern Psychological Association*; Boston, MA, April, 1989.

Publications

Journal articles

Feldman, J. (in press) Symbolic representation of probabilistic worlds. *Cognition*.

Mathy, F. and Feldman, J. (2012) What's magic about magic numbers? Chunking and data compression in short-term memory. *Cognition*, 122, 346-362.

- Kim, S.-H., Feldman, J. and Singh, M. (in press). Curved apparent motion induced by amodal completion. *Attention, Perception & Psychophysics*.
- Pantelis, P. C. and Feldman, J. (in press). Exploring the mental space of autonomous intentional agents. *Attention, Perception & Psychophysics*.
- Wilder, J. D., Feldman, J. and Singh, M. (2011) Superordinate shape classification using natural shape statistics. *Cognition*, 119, 325–340.
- Briscoe, E. and Feldman, J. (2011) Conceptual complexity and the bias/variance tradeoff. *Cognition*, 118, 2–16.
- Mathy, F. and Feldman, J. (2009) A rule-based presentation order facilitates category learning. *Psychonomic Bulletin & Review*, 16(6), 1050–1057.
- Feldman, J. (2009) Bayes and the simplicity principle in perception. *Psychological Review*, 116(4), 875–887.
- Harrison, S. and Feldman, J. (2009) The influence of shape and skeletal axis structure on texture perception. *Journal of Vision*, 9(6), 1–21.
- Harrison, S. and Feldman, J. (2009) Perceptual comparison of features within and between objects: a new look. *Vision Research*, 49(23), 2790–2799.
- Kim, S. and Feldman, J. (2009) Globally inconsistent figure/ground relations induced by a negative part. *Journal of Vision*, 9(10), 1–13.
- Goodman, N. D., Tenenbaum, J. B., Feldman, J. and Griffiths, T. L. (2008). A rational analysis of rule-based concept learning. *Cognitive Science*, 32(1), 108–154.
- Feldman, J. (2007) The formation of visual “objects” in the early computation of spatial relations. *Perception & Psychophysics*, 69(5), 816–827.
- Feldman, J. and Singh, M. (2006) Bayesian estimation of the shape skeleton. *Proceedings of the National Academy of Sciences* 103(47), 18014–18019.
- Tremoulet, P. D. and Feldman, J. (2006) The influence of spatial context and the role of intentionality in the interpretation of animacy from motion. *Perception & Psychophysics*, 68(6), 1047–1058.
- Barenholtz, E. and Feldman, J. (2006) Determination of visual figure and ground in dynamically deforming shapes. *Cognition*, 101(3), 530–544.
- Feldman, J. (2006) An algebra of human concept learning. *Journal of Mathematical Psychology*, 50, 339–368.
- Feldman, J. and Tremoulet, P. D. (2006) Individuation of visual objects over time. *Cognition*, 99, 131–165.
- Cohen, E. H., Barenholtz, E., Singh, M. and Feldman, J. (2005) What change detection tells us about the visual representation of shape. *Journal of Vision* 5(4), 313–321.
- Feldman, J. and Singh, M. (2005) Information along contours and object boundaries. *Psychological Review*, 112(1), 243–252.
- Feldman, J. (2004) How surprising is a simple pattern? Quantifying “Eureka!” *Cognition*, 93, 199–224.
- Feldman, J. (2003) The simplicity principle in human concept learning. *Current Directions in Psychological Science*, 12(6), 227–232.
- Barenholtz, E., Cohen, E., Feldman, J. and Singh, M. (2003). Detection of change in shape: an advantage for concavities. *Cognition*, 89(1), 1–9.
- Feldman, J. (2003) Perceptual grouping by selection of a logically minimal model. *International Journal of Computer Vision*, 55(1), 5–25.
- Feldman, J. (2003) What is a visual object? *Trends in Cognitive Science*, 7(6), 252–256.
- Feldman, J. (2003) A catalog of Boolean concepts. *Journal of Mathematical Psychology*, 47(1), 98–112.
- Barenholtz, E. and Feldman, J. (2003) Perceptual comparisons within and between object parts: evidence for a single-part superiority effect. *Vision Research*, 43(15), 1655–1666.

- Feldman, J. (2001). Bayesian contour integration. *Perception & Psychophysics*, 63(7) 1171-1182.
- Scholl, B., Pylyshyn, Z. and Feldman, J. (2001) What is a visual object? Evidence from target merging in multiple object tracking. *Cognition*, 80(1-2), 159-177.
- Feldman, J. (2000) Minimization of Boolean complexity in human concept learning. *Nature*, 407, 630-633.
- Tremoulet, P. and Feldman, J. (2000) Perception of animacy from the motion of a single object. *Perception*, 29, 943-951.
- Vishwanath, D., Kowler, E., and Feldman, J. (2000) Saccadic localization of occluded targets. *Vision Research*, 40, 2797-2811.
- Feldman, J. (2000) Bias toward regular form in mental shape spaces. *Journal of Experimental Psychology: Human Perception and Performance*, 26(1), 1-14.
- Feldman, J. (1999) The role of objects in perceptual grouping. *Acta Psychologica*, 102, 137-163.
- Feldman, J. & Richards, W. A. (1998) Mapping the mental space of rectangles. *Perception*, 27, 1191-1202.
- Feldman, J. (1997) Curvilinearity, covariance, and regularity in perceptual groups. *Vision Research*, 37(20), 2835-2848.
- Feldman, J. (1997) Regularity-based perceptual grouping. *Computational Intelligence*, 13(4), 582-623.
- Feldman, J. (1997) The structure of perceptual categories. *Journal of Mathematical Psychology*, 41, 145-170.
- Feldman, J. (1996) Regularity vs. genericity in the perception of collinearity. *Perception*, 25, 335-342.
- Feldman, J., Epstein, D., & Richards, W. (1992) Force dynamics of tempo change in music. *Music Perception* 10(2), 185-204.

Chapters and conference proceedings

- Pantelis, P. C., Cholewiak, S. A., Ringstad, P., Sanik, K., Weinstein, A., Wu, C.-C. and Feldman, J. Perception of intentions and mental states in autonomous virtual agents. Pantelis, P. C. and Feldman, J. (2011) Exploring the mental space of autonomous intentional agents. *Proceedings of the Cognitive Science Society*.
- Kim, S.-H., Feldman, J. and Singh, M. (2010). Launching curved apparent motion: a motion interpolation study. *Proceedings of the 2010 conference on Object Perception, Attention, and Memory*. Published *Visual Cognition*, 18(10), 1514-1518.
- Froyen, V., Feldman, J. and Singh, M. (2010) A Bayesian framework for figure-ground interpretation. In Lafferty, Williams, Shawe-Taylor, Zemel, and Culotta (eds.) *Advances in Neural Information Processing Systems 23*.
- Pantelis, P. C. and Feldman, J. (2010) Exploring the mental space of autonomous intentional agents. *Proceedings of the Cognitive Science Society*.
- Goodman, N. D., Tenenbaum, J. B., Griffiths, T. L., and Feldman, J. (2007) Compositionality in Rational Analysis: Grammar-based Induction for Concept Learning. In M. Oaksford and N. Chater (Eds.). *The probabilistic mind: Prospects for Bayesian cognitive science*.
- Goodman, N. D., Griffiths, T. L., A and Feldman, J., and Tenenbaum, J. B. (2007) A rational analysis of rule-based concept learning. *Proceedings of the Cognitive Science Society*.
- Briscoe, E. and Feldman, J. (2006) Conceptual complexity and the bias-variance tradeoff. In Sun R., Miyake N., Schunn C. (Eds.), *Proceedings of the 28th Annual Conference of the Cognitive Science Society* (pp. 1038-1043). Mahwah, NJ: Erlbaum.
- Aitkin, C. D. and Feldman, J. (2006) Subjective complexity of categories defined over three-valued features. In Sun R., Miyake N., Schunn C. (Eds.), *Proceedings of the 28th Annual Conference of the Cognitive Science Society* (pp. 961-966). Mahwah, NJ: Erlbaum.

- Fass, D. and Feldman, J. (2002) Categorization under complexity: a unified MDL account of human learning of regular and irregular categories. *Advances in Neural Information Processing Systems* 15, 35–42.
- Feldman, J. (1999) Does vision work? Towards a semantics of perception. In E. Lepore and Z. Pylyshyn (Eds.) *What is Cognitive Science?* Basil Blackwell, 208–229.
- Zhang, W., Dickinson, S., Sclaroff, S., Feldman, J. and Dunn, S. (1998) Shape-based indexing in a medical image database. *Proceedings of the I.E.E.E. Workshop on Biomedical Image Analysis*, 221–230.
- Feldman, J. (1997) Efficient regularity-based grouping. *Proceedings of the I.E.E.E. Conference on Computer Vision and Pattern Recognition*, 288–294, Los Alamitos, CA: I.E.E.E. Computer Society Press.
- Richards, W. Jepson, A. & Feldman, J. (1996) Priors, preferences, and categorical percepts. In D. Knill & W. Richards (eds.) *Perception as Bayesian Inference*, Cambridge University Press, 1996.
- Zhang, W., Dickinson, S., Sclaroff, S., Marsic, I., Hawkins, S., Feldman, J., and Dunn, S. (1996) Searching medical image databases by image content. *Proceedings of the Image and Multidimensional Digital Signal Processing Workshop*, 146–147 Belize, March, 1996.
- Feldman, J. (1995) Formal constraints on cognitive interpretations of causal structure. *Proceedings of the I.E.E.E. Workshop on Architectures for Semiotic Modeling and Situation Analysis*, Monterey, CA.
- Feldman, J. (1995) Perceptual models of small dot clusters. In I. Cox, P. Hansen, and B. Julesz (eds.), *Partitioning Data Sets: DIMACS Series in Discrete Mathematics and Theoretical Computer Science, Vol. 19*, American Mathematical Society Press.
- Feldman, J. (1992) Constructing perceptual categories. *Proceedings of the 1992 I.E.E.E. Conference on Computer Vision and Pattern Recognition*, 244–250. Los Alamitos, CA: I.E.E.E. Computer Society Press.
- Feldman, J., Jepson, A., & Richards, W. (1992) Is perception for real? *Proceedings of the Conference on Cognition and Representation*, 240–267, S.U.N.Y. Buffalo.
- Richards, W., Feldman, J., & Jepson, A. (1992) From features to perceptual categories. *Proceedings of the British Machine Vision Conference*, 99–108, Leeds, Great Britain.
- Epstein, D. & Feldman, J. (1991) Pilot studies of acceleration/ritard. In D. Epstein, *The Sounding Stream: Studies of Time in Music*. New York: Schirmer/Macmillan.
- Feldman, J. (1991). Perceptual simplicity and modes of structural generation. *Proceedings of the 13th Annual Conference of the Cognitive Science Society*, 299–304. Hillsdale, N.J.: Lawrence Erlbaum.

Conference abstracts

- Denisova, K., Singh, M. and Feldman, J. (2011) Differential sensitivity to natural and unnatural shape and part transformations. *Proceedings of the Meeting of the Vision Sciences Society*.
- Feldman, J., Singh, M., Froyen, V., Kim, S., and Kim, S.-H. (2011). Integrated Bayesian estimation of 3D shape and figure/ground. *Proceedings of the Meeting of the Vision Sciences Society*.
- Froyen, V., Feldman, J. and Singh, M. (2011). Exploring figure/ground assignment using a local method. *Proceedings of the Meeting of the Vision Sciences Society*.
- Kim, S., Singh, M., and Feldman, J. (2011). The influence of axiality on figure/ground assignment. *Proceedings of the Meeting of the Vision Sciences Society*.
- Kim, S.-H., Feldman, J. and Singh, M. (2011) Interpretation of surfaces as revealed by object motion behind occluders. *Proceedings of the Meeting of the Vision Sciences Society*.
- Kogo, N., Froyen, V., Singh, M., Feldman, J. and Wagemans, J. (2011). Integration of local and global cues to reconstruct surface structure. *Proceedings of the Meeting of the Vision Sciences Society*.

- Pantelis, P., Cholewiak, S., Ringstad, P., Sanik, K., Weinstein, A, Wu, C.-C., and Feldman, J. (2011). Perception of intentions and mental states in autonomous virtual agents. Proceedings of the Meeting of the Vision Sciences Society.
- Wilder, J., Feldman, J. and Singh, M. (2011). Contour complexity and contour detectability. Proceedings of the Meeting of the Vision Sciences Society.
- Froyen, V., Feldman, J. and Singh, M. (2010) Local propagation of border-ownership. Proceedings of the Meeting of the Vision Sciences Society.
- Kim, S.-H., Singh, M. and Feldman, J. (2010) Curved apparent motion induced by amodal completion and the launching effect. Proceedings of the Meeting of the Vision Sciences Society.
- Denisova, K, Singh, M., Feldman, J. and Su, X. (2009) Investigating shape representation using sensitivity to axis and part-based transformations. Proceedings of the Meeting of the Vision Sciences Society.
- Kibbe, M., Kowler, E. and Feldman, J. (2009). Oculomotor and manual search compared: The role of cognitive complexity and memory load. Proceedings of the Meeting of the Vision Sciences Society.
- Kim, S.-H. and Feldman, J. (2009) How is the inner contour of objects encoded in visual working memory? Evidence from holes. Proceedings of the Meeting of the Vision Sciences Society.
- Briscoe, E. and Singh, M. and Feldman (2008) Shape skeletons and shape similarity. Proceedings of the Meeting of the Vision Sciences Society.
- Harrison, S. and Feldman, J. (2008) Influence of medial axis structure on the discrimination of texture-defined shapes. Proceedings of the Meeting of the Vision Sciences Society.
- Kim, S.-H. and Feldman, J. (2008). Globally inconsistent figure/ground relations induced by negative parts. Proceedings of the Meeting of the Vision Sciences Society.
- Singh, M. and Feldman, J. (2008). Skeleton-based segmentation of shapes into parts. Proceedings of the Meeting of the Vision Sciences Society.
- Wilder, J., Feldman, J. and Singh, M. (2008). Shape classification based on natural shape statistics. Proceedings of the Meeting of the Vision Sciences Society.
- Feldman, J. (2007) Bayesian contour detection. Proceedings of the Meeting of the Vision Sciences Society.
- Hawley, S. and Feldman, J. (2007) Comparisons of features within and between objects. Proceedings of the Meeting of the Vision Sciences Society.
- Feldman, J. and Singh, M. (2006) Bayesian estimation of the shape skeleton. Proceedings of the Meeting of the Vision Sciences Society.
- Barenholtz, E. Cohen, E. Feldman, J. and Singh, M. (2003) Nonaccidental properties and change detection. Proceedings of the Meeting of the Vision Sciences Society.
- Feldman, J., Singh, M., Barenholtz, E., and Cohen, E. (2003). A psychophysical window onto the mental representation of shape. Proceedings of the Meeting of the Vision Sciences Society.
- Cohen, E. H., Barenholtz, E., Singh, M., Feldman, J. (2003). Superior change detection at shape concavities. Proceedings of the Meeting of the Vision Sciences Society.
- Feldman, J. (2002) Perceptual grouping into visual "objects": a detailed chronology. Proceedings of the Meeting of the Vision Sciences Society.
- Scholl, B. and Feldman, J. (2002) The temporal dynamics of objects formation in object-based attention. Proceedings of the Meeting of the Vision Sciences Society.
- Barenholtz, E. and Feldman, J. (2001) Interpretation of part boundaries and the movement of attention. Proceedings of the Meeting of the Vision Sciences Society.
- Tremoulet, P. and Feldman, J. (2001) Motion, context and animacy. Proceedings of the Meeting of the Vision Sciences Society.
- Tremoulet, P. and Feldman, J. (2000) Individuation of objects over time. *Investigative Ophthalmology & Visual Science*, 41 (4), A1139.

- Scholl, B., Pylyshyn, Z. and Feldman, J. (2000) What is a visual object? Evidence from 'target merging' in multiple-object tracking. *Investigative Ophthalmology & Visual Science*, 41 (4), A4031.
- Scholl, B., Pylyshyn, Z. and Feldman, J. (1999) What is a visual object? Evidence from multi-element tracking. Poster presented at the *Workshop on Object Perception and Memory (OPAM)*; Los Angeles, CA, November, 1999.
- Tremoulet, P. and Feldman, J. (1999) The perception of animacy from motion cues. *Investigative Ophthalmology & Visual Science*, 40 S742.
- Feldman, J. (1998) Inference of a virtual curve from patterns of dots. *Investigative Ophthalmology & Visual Science*, 39 (4) A962.
- Vishwanath, D., Kowler, E. & Feldman, J. (1998) Saccadic localization of occluded targets. *Investigative Ophthalmology & Visual Science*, 39 (4) A3511.

Miscellany

- Feldman, J. and Tremoulet, P. D. (2008) The attribution of mental architecture from motion: towards a computational theory. Rutgers Center for Cognitive Science Technical Report #87.
- Feldman, J. (2004) Bayes and the simplicity principle in visual perception. Rutgers Center for Cognitive Science Technical Report #80.
- Feldman, J. and Tremoulet, P. (2004) Individuation of visual objects over time. Rutgers Center for Cognitive Science Technical Report #74.
- Feldman, J. (2003) Simplicity and complexity in human concept learning. 2002 George Miller Award Address, *The General Psychologist*.
- Feldman, J. and Singh, M. (2003) Information along curves and closed contours. Rutgers Center for Cognitive Science Technical Report #73.
- Feldman, J. (2001) A catalog of Boolean concepts. Rutgers Center for Cognitive Science Technical Report #66.
- Feldman, J. Minimization of Boolean complexity in human concept learning: supplementary materials (page at *Nature's* website, <http://www.nature.com/nature/journal/v407/n6804/supinfo/407630a0.html>).
- Feldman, J. (1998) The role of objects in perceptual grouping. TR#42, Rutgers Center for Cognitive Science.
- Feldman, J. (1996) The logic of the homunculus, and the Closed World Assumption. Commentary on Barlow, H., "Banishing the homunculus." In D. Knill & W. Richards (eds.) *Perception as Bayesian Inference*, Cambridge University Press, 1996, 499-501.
- Feldman, J. (1996) Are "generic variables" regularity-free? Commentary on Freeman, W., "The generic viewpoint assumption in a Bayesian framework." In D. Knill & W. Richards (eds.) *Perception as Bayesian Inference*, Cambridge University Press, 1996, 471-473.
- Jepson, A. & Feldman, J. (1996) A biased view of perceivers. Commentary on Bennett, B. & Hoffman, D., "Observer theory, Bayes theory, and psychophysics." In D. Knill & W. Richards (eds.) *Perception as Bayesian Inference*, Cambridge University Press, 1996, 229-235.
- Feldman, J. (1995) Regularity-based perceptual grouping. TR#21, Rutgers Center for Cognitive Science.
- Feldman, J. (1992) Causal models and spatial categories. Commentary on Landau, B. & Jackendoff, R. " 'What' and 'where' in spatial language and spatial cognition," *Behavioral and Brain Sciences* 16(2).
- Feldman, J. (1992) Perceptual categories and world regularities. Ph.D. Dissertation, Dept. of Brain and Cognitive Sciences, Massachusetts Institute of Technology. Available as Rutgers University Center for Cognitive Science Technical Report #6.

- Feldman, J. (1991) Perceptual decomposition as inference: continuous curvilinear processes. M.I.T. Cognitive Science Center Occasional Paper #42.
- Feldman, J. (1989) Shape from rotation. Unpublished manuscript.

Relevant publications by others

Commentaries on Feldman (2000) Nature, 407, 630-633:

- Chater, N. (2000) The logic of human learning. "News and views" article in *Nature*, 407, 573-574.
- Wexler, M. (2001) Logical learning. "In brief" article in *Trends in Cognitive Sciences*, 5(2), 52.

Under review

- Mathy, F. and Feldman, J. Presentation order effects on category learning and category generalization.
- Singh, M. and Feldman, J. Principles of contour information: a response to Lim and Leek (in press).
- Wagemans, J., Feldman, J., Gepshtein, S., Kimchi, R., Pomerantz, J., van der Helm, P. and van Leeuwen, C. A Century of Gestalt Psychology in Visual Perception II. Conceptual and Theoretical Foundations.