

## **TOMASO A. POGGIO**

Department of Brain & Cognitive Sciences  
McGovern Institute for Brain Research  
Computer Science & Artificial Intelligence Lab  
Massachusetts Institute of Technology  
43 Vassar Street  
Cambridge, MA 02142

URL: <http://cbcl.mit.edu/people/poggio/poggio-cv-web.htm>

Date of Birth: September 11, 1947  
Citizenship: U.S.

### **EDUCATION**

Ph.D. in Theoretical Physics, University of Genoa (1970), *Summa cum Laude*. Thesis: "On Holographic Models of Memory."

### **ACADEMIC POSITIONS**

Professor, Department of Brain & Cognitive Sciences, Computer Science & Artificial Intelligence Laboratory and McGovern Institute for Brain Research, Massachusetts Institute of Technology, 1984-present.

Associate Professor, Department of Psychology and Artificial Intelligence Laboratory, Massachusetts Institute of Technology, 1981-1984.

Wissenschaftlicher Assistant, Max Planck Institut für Biologische Kybernetik, Tübingen, Germany, 1971-1981.

### **HONORS AND SERVICE**

Honorary Chair: European Conference on Computer Vision (ECCV), Florence, Italy, October 7-13, 2012

Valedictory Talk: "The Future of the Science and Engineering of Intelligence," IEEE CIPHER 2012, New York City, March 30, 2012

Honorary Chair: IEEE Computational Intelligence for Financial Engineering and Economics (CIFER) 2012, March 29-30, 2012, New York City

Member of ISICT Committee of Experts, 2010

Member of the Duke University External Review Committee (Dept. CS), 2010

General Chair, 2010 International Conference on Brain Informatics (BI 2010), August 28-30, 2010, Toronto, Canada

American Association for the Advancement of Science (AAAS) Fellow (2009)

Okawa Prize, 2009

Keynote address at V incontro annuale ISICT, Genoa, Italy, October 2009

Honorary Member of IEEE Symposium on Computational Intelligence for Financial Engineering (CIFER 2009)

Member of the Scientific Board of ISI Turin, 2006 – present

Co-organizer of Workshop on Learning Theory, FOCM '05, Santander, Spain, 2005.

Neuroscience Research Program Honorary Associate

Elected to Committee for Istituto Superiore di Studi in Tecnologie dell'Informazione e della Comunicazione (ISICT), 2005-2006.

Gabor Award, International Neural Network Society, 2003.

Co-organizer of Workshop on Learning Theory, FOCCM '02, Minneapolis, MN, 2002.

Eugene McDermott Chair, McGovern Institute for Brain Research, 2002.

Member of the Visiting Committee of the Computer Science Department, Columbia University, 2002.

Member of the Center for Neuromorphic System Engineering Advisory Board, California Technical Institute, 2002.

Chairman, Scientific Advisory Board of IRST (Istituto per la Ricerca Scientifica e Tecnologica, the main research institute in Trentino Alto Adige, Italy), June 2002.

Senior Investigator, McGovern Institute for Brain Research, 2000.

*Laurea Honoris Causa* in Ingegneria Informatica, Bicentenario dell'Invenzione della Pila Cerimonia di Chiusura dell'Anno Voltiano, Pavia, Italia, March 2000.

Member of the Riken External Review Committee (for BSI), 1999.

Member of External Advisory Committee evaluating the NEC Princeton Laboratory, 1996-1999.

Foreign Member, Istituto Lombardo dell'Accademia di Scienze e Lettere, 1998.

Foreign Member, Italian Academy of Sciences, 1998.

Honorable Mention, Pattern Recognition Society Award, October, 1998.

Honorary Chair, International ICSC/IFAC Symposium on Neural Computation/NC '98, Technical University of Vienna, September, 1998.

Fellow, American Academy of Arts and Sciences, 1997.

MIT 50K Entrepreneurship Competition Award, Imagen (advisor), 1997.

Member, Daimler-Benz Circle Member Group, 1997.

AT&T New Research Fund Award, 1996.

Member, Kuratorium of the Max Planck Society (for MPIfK, Tuebingen), 1995-1999.

Co-Chair, IEEE/IAFE "Computational Intelligence for Financial Engineering," New York, April, 1995.

Co-Chair, School of Science Committee on "The Future of Neuroscience at MIT," 1994.

Member, Biomedical Engineering Advisory Council, Johns Hopkins University, 1994-present.

Editorial Board, "Advances in Computational Mathematics"(AiCM), May 1993 – May 1999

Co-Director, Center for Biological and Computational Learning, Department of Brain & Cognitive Sciences, Massachusetts Institute of Technology, 1992-present.

Max Planck Research Award (with M. Fahle) from the Alexander von Humboldt Foundation, Bonn, Germany, 1992.

Co-organizer (with D.A. Glaser) of the Dahlem Workshop on "Exploring Brain Functions," Berlin, 1991.

Founding Fellow, American Association of Artificial Intelligence, 1990.

Uncas and Helen Whitaker Chair, Department of Brain & Cognitive Sciences, Massachusetts Institute of Technology, 1988-2002.

Board of Trustees, The Neurosciences Institute, Neurosciences Research Foundation, 1988.

Corporate Fellow, Thinking Machines Corporation, 1984.

Director, the Center for Biological Information Processing, Whitaker College of Health Sciences and Technology, Massachusetts Institute of Technology, 1984.

Co-Director (with P. H. Winston) of the Course on Vision and Image Understanding at Ettore Majorana Center for Scientific Culture, International School of Biophysics, Erice, Italy, 1984.

“Premio Luigi Carlo Rossi” award (with V. Torre) from Elsag Elettronica, San Giorgio, Italy, 1984.

Columbus Prize of the Istituto Internazionale delle Comunicazioni Genoa, at the XXX Convegno Internazionale delle Comunicazioni, Genoa, Italy, 1982.

Member, Neurosciences Research Program, 1979.

Otto-Hahn-Medaille (for outstanding young scientists) of the Max-Planck-Society, 1979.

CNR fellowship to work on problems of Neurobiology and Computer Science at the CNR Laboratory of Biophysics and Cybernetics, Camogli, Italy, CNR, 1971.

Angelo delle Riccia Graduate Fellowship, 1969 and 1970.

Award of the Cassa di Risparmio of Genoa, 1966.

### RECENT TALKS

Invited Speaker: “The Computational Magic of the Ventral Stream,” Computer Vision and Human Perception - Future Trends: In Honor of Prof. Shimon Ullman, The Weizmann Institute of Science, Israel, April 15, 2012

Invited Speaker: World Economic Forum Annual Meeting 2012, Davos, Switzerland, January 25-29, 2012

Organizer & Moderator: “Knowledge-Based Economies and Institutions Such As MIT,” October 22, 2011, and “Science and Engineering of Intelligence,” October 23, 2011, [9th Annual Festival della Scienza](#), Genoa, Italy

Invited Speaker: “The Computational Magic of the ventral stream: A theory”, 2011 Annual Symposium: Open Questions in Neuroscience, Allen Institute for Brain Science, Seattle WA, October 4-5, 2011

Invited Speaker: World Conference on the Future of Science Mind: the essence of humanity, Venice, September 18-20, 2011

Invited Speaker: “Debate: Today the World of Tomorrow – Scientific Developments,” Intelligence on the World, Europe, and Italy, Villa d’Este (on Lake Como, Italy), September 2, 2011

Invited Speaker: “From understanding vision in the fly to understanding visual cortex,” ECVF 2011, Toulouse, France, August 26, 2011

Invited Speaker: “Learning Theory and Steve Smale,” SmaleFest 2011, UC Berkeley, July 30-August 3, 2011

Invited Speaker: “The magic of the visual cortex,” Dagstuhl Seminar: Mathematical and Computational Foundations of Learning Theory, July 17-23, 2011

Invited Speaker: “The computational magic off the ventral stream: towards a theory,” IPAM, UCLA, Graduate Summer School: Probabilistic Models of Cognition, July 11, 2011

Plenary Speaker: “[The Hierarchical Recognition Architecture of Visual Cortex: Learning and Discounting Transformations](#),” The Fourth International Conference on Computational Harmonic Analysis, Hong Kong, May 23, 2011

Invited Speaker: Grand Challenges in Neural Computation II: Neuromimetic Processing and Synthetic Cognition, Los Alamos, NM, February 20-22, 2011

Invited Speaker: “Visual Recognition in the Primate Cortex,” Harvard University, January 31, 2011

Invited Speaker: 'Max Birnstiel Lectures', Research Institute of Molecular Pathology (I.M.P.), Vienna, Austria, January 12, 2011

Invited Speaker: Defining Cognitive Informatics: "Learning and Intelligence in Brains and Machines," University Vienna, Austria, January 11, 2011

Invited Speaker: Jon Postel Distinguished Lecturer Series, "Intelligence in minds, brains and machines: the neuroscience perspective," UCLA, Computer Science Department, November 4, 2010

Invited Speaker: UC San Diego Neuroscience Seminar Series, "What is where: Visual Recognition and Attention in the Primate Cortex", November 2, 2010

Keynote address IEEE AIPR Conference, "Learning in Brains and Machines," Washington DC, October 13, 2010

Invited Speaker: BCE 2010, "Intelligence in Minds, Brains and Machines," Seoul, Korea, Sept 28-29, 2010.

Keynote address ECML 2010, "Hierarchical Learning Machines and Neuroscience of Visual Cortex" Barcelona, Spain, September 21, 2010

Invited Lecturer: ICVSS 2010, "Visual Recognition in Primates and Machines," Sicily, Italy, July 12, 2010

Invited Speaker: CONAS Workshop 2010, "Intelligence in minds, brains and machines," Ghent, Belgium, July 9-10, 2010

Invited Speaker: Luigi Stringa - memorial conference hosted by La Fondazione Bruno Kessler, Povo, Italy, July 5, 2010

Invited Speaker: Lagrange Prize Awarding Ceremony, Moderated conversation between James J. Collins and Tomaso Poggio, CRT Foundation, Turin, Italy July 1, 2010

Invited Speaker: SmaleFest, "What is Where: Vision and Learning", France, June 16, 2010

Invited Speaker: NSF Workshop on Shared Organizing Principles In the Computing and Biological Sciences, Arlington, VA, May 25-26, 2010

Keynote address: ATR Workshop, Memorial Symposium, "Intelligence and learning in Brains and Machines," Tokyo International Forum Hall, March 10, 2010

Invited speaker: Renaissance Technologies Colloquium, "Learning in Brains and Machines," Renaissance Corp., Stonybrook, NY, February 25, 2010

Invited speaker: New England Statistics Symposium, "Learning Theory: Kernels and Derived Kernels," Harvard University, Statistics Dept., April 17, 2010

Distinguished speaker, Heller Lecture Series in Computational Neuroscience, "[Intelligence and Learning in Brains and Machines](#)", The Hebrew University of Jerusalem, Israel, January, 2010

Invited speaker: "Learning Theory and Heierarchical Kernel Machines," INC Lecture, The Hebrew University of Jerusalem, Israel, January 7, 2010

Invited speaker: "What is where: Visual Reception I the Primate Cortex," Weizmann Institute, Jerusalem, Israel, January 6, 2010

William Benter Distinguished Lecturer, City University of Hong Kong, September 2009

Distinguished Visitor, A\*STAR program and the Biomedical Research Council, Singapore, September 2009

Keynote address at MMDS, Copenhagen "From Neuroscience to Hierarchical Learning Architectures," July 2009

Invited Speaker: Theory and Practice of Computational Learning Workshop, U. Chicago/TTI Chicago/Ohio State U., June 1-11, Chicago Illinois, 2009

Keynote address at ISMB Conference, Stockholm, "Computational Neuroscience: Models of the Visual System," July 2009

NSF Distinguished Lecture (CISE/BIO/SBE/MPS/ENG), April 24, 2009

Distinguished speaker Lincoln Lab, March 2009

Main Speaker at the Inauguration of the Werner Reichardt Center for Integrative Neuroscience, University of Tuebingen, December 8, 2008

Distinguished Speaker at NSF, Washington, August 14th, 2008

Distinguished Speaker at DARPA-IPTO, Washington, April 5<sup>th</sup>, 2008

[“Models of Visual Recognition in the Ventral System”](#) (T. Poggio) Keynote address: Cosyne 2008, Salt Lake City, Utah, February 28, 2008.

[“Visual Recognition in Primates and Machines”](#) (T. Poggio) Tutorial: Twenty-first Annual Conference Neural Information Processing Systems: NIPS Conference 2007, Vancouver, British Columbia, Canada, December 3, 2007.

### PROFESSIONAL ORGANIZATIONS

American Association for Artificial Intelligence, 1998.  
American Association for the Advancement of Science, 1983.  
American Mathematical Society, 1977.  
I.E.E.E., 1985. Membership number: 02390904.  
Institute for Scientific Interchange Foundation, 2004.  
I.U.P.A.B. Commission on Biophysics of Communication, 1982.  
Optical Society of America, 1977.  
Society for Neuroscience, 1984.

### EDITORIAL BOARDS

Editorial Boards:

Advances in Applied Mathematics  
Advances in Computational Mathematics  
Advances in Neurocomputing  
Biological Cybernetics  
Computational Neuroscience Series of MIT Press  
Journal of Artificial Intelligence Research  
Network  
Neural Computation  
Neural Networks  
Neurocomputing  
Spatial Vision  
Synapse  
Visual Neuroscience

Associate Editor:

Journal of Computer and System Sciences, 1991.  
Systems & Control Letters, 1984.

Advisory Boards:

Handbook of the Senses, 2001.  
Neural Network Signal Processing Technical Committee, 1994.  
Institute of Physics Publishing, 1991.  
Annals of Mathematics and Artificial Intelligence, 1988.  
VNY Science Press, monographs in neuroinformatics and robotics, 1984.  
MIT/Bradford Press, Computational Models of Cognition and Perception, 1984.  
Lecture Notes in Biomathematics, 1979.  
Journal of Mathematical Biology, 1977.

Review Boards:

Mathematical Reviews, 1977.

## PATENTS

"Computer Method and Apparatus for Matching Between Line Drawings"

by Stephen E. Librande and Tomaso Poggio

M.I.T. Case No. 5831TS, United States of America Patent No. 5325475, Issued June 28, 1994

Japan Patent No. 3727061, Issued October 7, 2005

"Computer Method and Apparatus for Video Conferencing"

"Memory-Based Method and Apparatus for Computer Graphics"

by R. Brunelli, Chiejin Cheng, Tomaso Poggio and Bin Zhang

M.I.T. Case No. 5572S, United States of America Patent No. 5416899, Issued May 16, 1995,

United States of America Patent No. 5659692, Issued August 19, 1997

European Patent Convention Patent No. 0621969, Issued July 3, 1996

France Patent No. 0621969, Issued July 3, 1996

Germany Patent No. 69303468.8, Issued July 3, 1996

United Kingdom Patent No. 0621969, Issued July 3, 1996

"Object Movement Estimator Using One-Dimensional Optical Flow"

by Nicola Ancona, John N. Harris and Tomaso Poggio

M.I.T. Case No. 5951, United States of America Patent No. 5717792, Issued February 10, 1998

"Example-Based Image Analysis and Synthesis Using Pixelwise Correspondence"

by David Beymer, Tomaso Poggio and Amnon Shashua

M.I.T. Case No. 6267S, United States of America Patent No. 5745668, Issued April 28, 1998

"Image Analysis and Synthesis Networks Using Shape and Texture Information"

by David Beymer, Michael J. Jones, Tomaso Poggio and Thomas Vetter

M.I.T. Case No. 6779 United States of America Patent No. 5774129, Issued June 30, 1998

"Method and Apparatus for Classifying and Identifying Images"

by W. Eric L. Grimson, Pamela Lipson, Tomaso Poggio and Pawan Sinha

M.I.T. Case No. 7274

United States of America Patent No. 5963670, Issued October 5, 1999

United States of America Patent No. 6549660, Issued April 15, 2003

"Talking Facial Display Method and Apparatus"

by Antoine F. Ezzat and Tomaso Poggio

M.I.T. Case No. 8102, United States of America Patent No. 6250928, Issued June 26, 2001

"Trainable System to Search for Objects in Images"

by Michael Oren, Constantine P. Papageorgiou, Tomaso Poggio and Pawan Sinha

M.I.T. Case No. 7691, United States of America Patent No. 6421463, Issued July 16, 2002

"Correspondence between N-Dimensional Surfaces: Vector Fields That Are Defined By Surfaces and That Generate Surfaces Which Preserve Characteristics O"

by Tomaso Poggio and Christian R. Shelton

M.I.T. Case No. 8101, United States of America Patent No. 6525744, Issued February 25, 2003

"Trainable Videorealistic Speech Animation"

by Antoine F. Ezzat and Tomaso Poggio

M.I.T. Case No. 9838, United States of America Patent No. 7168953, Issued January 30, 2007

"Electronic Market-Maker"

by Nicholas Tung. Chan, Andrew W. Lo and Tomaso Poggio

M.I.T. Case No. 8336S, United States of America Patent No. 7,599,876, Issued October 6, 2009

"High-Performance Vision System Exploiting Key Features Of Visual Cortex"

by Stanley M. Bileschi, Tomaso Poggio, Maximilian Riesenhuber, Thomas R. Serre and Lior Wolf

M.I.T. Case No. 11985, United States of America Patent No. 7,606,777, Issued October 20, 2009

"Voice Morphing For Text-To-Speech"

by Antoine F. Ezzat and Tomaso Poggio

M.I.T. Case No. 8883

"Face Detection and Identification: The Espresso System"  
by Bernd Heisele, Purdy Ho and Tomaso Poggio  
M.I.T. Case No. 9577

"Localized Spectro-Temporal Cepstral Analysis of Speech"  
by Jacob Vincent. Bouvrie, Antoine F. Ezzat and Tomaso Poggio  
M.I.T. Case No. 12832

### CURRENT GRADUATE STUDENTS:

Charlie Frogner	Brain & Cognitive Sciences
Huei-Han Jhuang	Electrical Engineering & Computer Science
<a href="#">Ulf Knoblich</a>	Brain & Cognitive Sciences
Joel Leibo	Brain & Cognitive Sciences
Ethan Meyers	Brain & Cognitive Sciences
<a href="#">James Mutch</a>	Brain & Cognitive Sciences
Cheston Tan	Brain & Cognitive Sciences

### CURRENT POSTDOCTORAL FELLOWS/ASSOCIATES:

<a href="#">Stan Bileschi</a>	2006-present
Pavan K. Mallapragada	(to join CBCL in Fall 2010)
Neva Cherniavsky	(to join CBCL in Fall 2010)
SangWan Lee	(to join CBCL in Fall 2010)

### FORMER GRADUATE STUDENTS:

[Sharat Chikkerur](#), Ph.D., June 2010, Thesis Title: "What and Where: A Bayesian Inference Theory of Visual Attention," Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Jake Bouvrie](#), Ph.D., June 2009, Thesis Title: [Hierarchical Learning: Theory with Applications in Speech and Vision](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences

Giorgos Zacharia, Ph.D., February 2009. Thesis Title: [Regularized Algorithms for Ranking and Manifold](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science

Adlar Kim, Ph.D., May 2008, Thesis Title: An Order Flow Model and a Liquidity Measure of Financial Markets, Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

Minjoon Kouh, Ph.D., May 2007. Thesis Title: [Toward a More Biologically Plausible Model of Object Recognition](#), Massachusetts Institute of Technology, Physics.

[Stanley Bileschi](#), Ph.D., May 2006. Thesis Title: [StreetScenes: Towards Scene Understanding in Still Images](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Sanmay Das](#), Ph.D., April 2006. Thesis Title: [Dealers, Insiders and Bandits: Learning and Its Effects on Market Outcomes](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Alexander Rakhlin](#), Ph.D., April 2006. Thesis Title: [Applications of Empirical Processes in Learning Theory: Algorithmic Stability and Generalization Bounds](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

[Thomas Serre](#), Ph.D., March 2006. Thesis Title: [Learning a Dictionary of Shape-Components in Visual Cortex: Comparison with Neurons, Humans and Machines](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences

[Gene W. Ye](#), Ph.D., November 2004. Thesis title: [Identification, Improved Modeling and Integration of Signals to Predict Constitutive and Alternative Splicing](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Ryan Rifkin](#), Ph.D., September, 2002. Thesis title: [Everything Old Is New Again: A Fresh Look at Historical Approaches in Machine Learning](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science and Operations Research.

[Martin Szummer](#), Ph.D., September 2002. Thesis title: [Learning from Partially Labeled Data](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Vinay Kumar](#), Ph.D., June 2002. Thesis title: [Towards Trainable Man-machine Interfaces: Combining Top-down Constraints with Bottom-up Learning in Facial Analysis](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

[Tony Ezzat](#), Ph.D., June 2002. Thesis title: [Trainable Vidoerealistic Speech Animation](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Christian Shelton](#), Ph.D., August 2001. Thesis title: [Importance Sampling for Reinforcement Learning with Multiple Objectives](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Sayan Mukherjee](#), Ph.D., June 2001. Thesis title: [Application of Statistical Learning Theory to DNA Microarray Analysis](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

Nicholas Chan, Ph.D. February 2001. Thesis title: [Artificial Markets and Intelligent Agents](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Theodoros Evgeniou](#), Ph.D. June 2000. Thesis title: [Learning with Kernel Machine Architectures](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Maximilian Riesenhuber](#), Ph.D. June 2000. Thesis title: [How a Part of the Brain Might or Might Not work: A New Hierarchical Model of Object Recognition](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

[Constantine Papageorgiou](#), Ph.D., December 1999. Thesis title: [A Trainable System for Object Detection in Images and Video Sequences](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science and Operations Research.

Edgar Osuna, Ph.D. June 1998. Thesis title: [Support Vector Machines: Training and Applications](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science and Operations Research.

[Michael Jones](#), Ph.D. June 1997. Thesis title: "Multidimensional Morphable Models: A Framework for Representing and Matching Object Classes," Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

Robert Thau, Ph.D. June 1997. Thesis title: [Reliably Mapping a Robot's Environment Using Fast Vision and Local, but not Global, Metric Data](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

Emanuela Bricolo, Ph.D., June 1996. Thesis title: [On the Representation of Novel Objects: Human Psychophysics, Monkey Physiology and Computational Models](#), Massachusetts Institute of Technology, Brain & Cognitive Sciences.

Kah-Kay Sung (*deceased*), Ph.D., February 1996. Thesis title: [Learning and Example Selection for Object and Pattern Detection](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[Pawan Sinha](#), Ph.D., August 1995. Thesis title: [Perceiving and Recognizing Three-Dimensional Forms](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

[David Beymer](#), Ph.D., August 1995. Thesis title: [Pose-invariant Face Recognition Using Real and Virtual Views](#), Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

[Partha Niyogi](#), Ph.D., February 1995. Thesis title: [The Informational Complexity of Learning from Examples](#), Massachusetts Institute of Technology, Electrical Engineering & Computer Science

James Hutchinson, Ph.D., February 1994; S.M., June 1986. Ph.D. Thesis title: [A Radial Basis Function Approach to Financial Time Series Analysis](#), Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science. S.M. Thesis title: "Early Vision Problem Solving with Analog and Binary Resistive Networks," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

[Brian Subirana](#), Ph.D., February 1994. Thesis title: "Mid-level Vision and Recognition of Non-Rigid Objects," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Anthony Passera, Ph.D., February 1993. Thesis title: [A Computational Model of Visuo-motor Development](#), Massachusetts Institute of Technology, Department of Brain & Cognitive Sciences

[Thomas Breuel](#), Ph.D., June 1992. Thesis title: [Geometric Aspects of Visual Object Recognition](#), Massachusetts Institute of Technology, Department of Brain & Cognitive Sciences.

[Lyle Borg-Graham](#), Ph.D., January 1992. Thesis title: [On Directional Selectivity in Vertebrate Retina: An Experimental and Computational Study](#), Massachusetts Institute of Technology, Harvard-MIT Division of Health Sciences and Technology.

[Woodward Yang](#), Ph.D., September 1990. Thesis title: [The Architecture and Design of CCD Processors for Computer Vision](#), Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Ed Gamble, Ph.D., June 1990. Thesis title: "Integration of Early Visual Cues for Recognition," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Michael Villalba, Ph.D., January 1990. Thesis title: "Fast Visual Recognition of Large Object Sets," Massachusetts Institute of Technology, Department of Aeronautics & Astronautics.

[Davi Geiger](#), Ph.D., December 1989. Thesis title: "Visual Models with Statistical Field Theory," Massachusetts Institute of Technology, Department of Mathematics.

[Anya Hurlbert](#), M.D./Ph.D., May 1989. Thesis title: "The Computation of Color," Harvard Medical School/ Massachusetts Institute of Technology, Department of Brain & Cognitive Sciences.

Bror Saxberg, M.D./Ph.D., May 1989; S.M., May 1985. Ph.D. Thesis title: "A Modern Differential Geometric Approach to Shape from Shading," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science. S.M. Thesis title: "Parameters of a Three-Dimensional Free Fall Trajectory from its Two-Dimensional Central Projection," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Jose Marroquin, Ph.D., September 1985. Thesis title: [Probabilistic Solution of Inverse Problems](#), Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

[Christof Koch](#), Ph.D., October 1982. Thesis title: "Nichtlineare Informationsverarbeitung in Dendritischen Baumen Beliebiger Geometrie," University of Tübingen, Germany.

#### **FORMER MASTERS STUDENTS:**

Neha Soni, S.M., EECS, MIT, February 2006. "Sequence Motifs Predictive of Tissue-specific Skipping."

James Skelley, S.M., August 2005. Thesis title: "Experiments in Expression Recognition" Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science

Charles F. Cadieu, S.M., May 2005. Thesis title: "Modeling Shape Representation in Visual Cortex Area V4," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Ian S. Martin, S.M., May 2005. Thesis title: "Robust Learning and Segmentation for Scene Understanding," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Jia (Jane) Wu, S.M., May 2005. Thesis title: "Comparing Visual Features for Morphing Based Recognition," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Jacob V. Bouvrie, S.M., June 2004. Thesis title: "Multi-Source Contingency Clustering," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Alexandros Kyriakides, S.M., February 2004. Thesis title: "Supervised Information Retrieval for Text and Images," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Brian Leung, S.M., May 2004. Thesis title: "Component-based Car Detection in Street Scene Images," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Pascal Paysan, S.M., Computer Science, Fachhochschule Esslingen, February 2004. Thesis title: "Stereovision-based Vehicle Classification Using Support Vector Machines."

Sanmay Das, S.M., June 2003. Thesis Title: "Intelligent Market-Making in Artificial Markets," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Brian Kim, S.M., June 2003. Thesis Title: "Multi-Source Human Identification," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Jennifer Louie, S.M., May 2003. Thesis Title: "A Biological Model of Object Recognition with Feature Learning," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Ezra Rosen, S.M., May 2003. Thesis Title: "Face Representation in Cortex: Studies Using a Simple and Not So Special Model," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Stanley Bileschi, S.M., February 2003. Thesis Title: "Advances in Component Based Face Detection," Massachusetts Institute of Technology, Department of Electrical Engineering & Artificial Intelligence Laboratory.

Jennifer Huang, S.M. January 2003. Thesis title: "Component-based Face Recognition with 3D Morphable Models," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Andrew Crane, S.M. September 2002. Thesis title: "Object Recognition with Partially Labeled Examples," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Purdy Ho, S.M., May 2001. Thesis title: "Rotation Invariant Real-time Face Detection and Recognition System," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Luis Pérez-Breva, Ingeniería Superior Industrial Química, July 1999. Thesis title: "Applying Learning Techniques to Solve Engineering Problems: Preprocessing, Learning and Measuring," Universitat Ramon Llull, Barcelona, Spain. [Internship Program]

Jon Wang, S.M. May 1999. Thesis title: "Information Aggregation and Dissemination in Simulated Markets," Massachusetts Institute of Technology, Department of Computer Science.

Janet Marques, S.M., May 1999. Thesis title: "An Automatic Annotation System for Audio Data Containing Music," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Christian Shelton, S.M., May 1998. Thesis title: "Three-Dimensional Correspondence," Massachusetts Institute of Technology, Department of Electrical Engineering & Artificial Intelligence Laboratory.

Stephen Lines, S.M., June 1996. Thesis title: "The Photo-Realistic Synthesis of Novel Views from Example Images," Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

Elaine Yiu, Ph.D., June 1996. Thesis title: "Image Classification Using Color Cues and Texture Orientation," Massachusetts Institute of Technology, Electrical Engineering & Computer Science.

Nicholas Chan, S.M., May 1995. Thesis title: "The Complexity and A Priori Knowledge of Learning from Examples," Massachusetts Institute of Technology, Department of Computer Science.

Anuj Mohan, S.M., June 1999. Thesis title: "Robust Object Detection in Images by Computers," Massachusetts Institute of Technology, Department of Computer Science.

James Hutchinson, S.M., June 1986; Ph.D., February 1994. S.M. Thesis title: "Early Vision Problem Solving with Analog and Binary Resistive Networks," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science. Ph.D. Thesis title: "A Radial Basis Function Approach to Financial Time Series Analysis," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Michael Jones, S.M., September 1992. Thesis title: "Using Recurrent Networks for Dimensionality Reduction," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Vijay Balasubramanian, S.M., June 1992. Thesis title: "Equivalence and Reduction of Hidden Markov Models," Massachusetts Institute of Technology, Department of Electrical Engineering & Computer Science.

Mike Drumheller, S.M., May 1989. Thesis title: "Synthesizing a Motion Detector from Examples," Massachusetts Institute of Technology, Department of Brain & Cognitive Sciences.

Terry Sanger, S.M., June 1989. Thesis title: "Optimal Unsupervised Learning in Feedforward Neural Networks," Massachusetts Institute of Technology, Department of Brain & Cognitive Sciences.

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(Statistics: h-index (from Publish or Perish) = 80 in 2008)

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