YIANNIS ALOIMONOS

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RESEARCH INTERESTS

Cognitive Computing: Vision, Action and Language
The study of the mechanisms responsible for recovering three-dimensional information from image sequences obtained by an active observer, that is, descriptions of visual space and space- time (motion, shape, segmentation) and the relationship of such representations to motor descriptions and symbolic knowledge, in biologically inspired cognitive architectures.

AFFILIATIONS

Computer Vision Laboratory
Institute for Advanced Computer Studies
Department of Computer Science
Electrical and Computer Engineering
Institute for Systems Research
Neural and Cognitive Science Program
Maryland Robotics Center

EDUCATION

Degree	Institution	Year	Field
Diploma	University of Athens, Greece	1981	Mathematics
M.S.	University of Rochester, New York	1984	Computer Science
PhD	University of Rochester, New York	1987	Computer Science

PROFESSIONAL EXPERIENCE

University of Maryland, College Park	Institute for Advanced Computer Studies
1986-present	Department of Computer Science
	Computer Vision Laboratory
	Center for Automation Research
1987-1992	Assistant Professor
1992-1997	Associate Professor
1998-Present	Professor
1990-present	Head, Computer Vision Laboratory
Royal Institute of Technology, Stockholm, Sweden	Visiting Professor
09/1993-02/1994	
University of Crete	Visiting Professor
Department of Computer Science	
Crete, Greece	
02/1994-08/1994	

PROFESSIONAL ACTIVITIES

Editor, Advances in Computer Vision series, Lawrence Erlbaum Publishers
Associate Editor, The Visual Computer
Associate Editor, Computer Vision and Image Understanding Journal
Associate Editor, IEEE Transactions on Pattern Analysis and Machine Intelligence Journal, 1990-1995
Associate Editor, Pattern Recognition Journal
Editorial Advisory Board, Videre, MIT Press
Referee for:

- Science
- Nature
- International Journal of Computer Vision
- IEEE Transactions on PAMI
- IEEE Transactions on Image Processing

- IEEE Transactions on Systems, Man and Cybernetics
- IEEE Transactions on Robotics and Automation
- Biological Cybernetics
- International Journal of Robotics Research
- Computer Vision and Image Understanding
- Journal of the Optical Society of America
- Image and Vision Computing
- Pattern Recognition Letters
- Pattern Recognition
- Proceedings of the IEEE
- Machine Vision and Applications, Springer-Verlag
- The Visual Computer

Reviewer, National Science Foundation (NSF), 1988-present
Program Committee, IEEE Workshop on Visual Motion, 1989
Program Committee, IEEE Computer Vision and Pattern Recognition Conference (CVPR), 1992, 1994
Program Committee, International Conference on Computer Vision (ICCV), 1988
Program Committee, International Conference on Pattern Recognition (ICPR), 1994
NSF Panelist, Small Business Innovative Research, Directorate of Robotics and Machine Intelligence, 1988
NSF Panelist, Research Initiation Awards, Directorate of Robotics and Machine Intelligence, 1990, 1991, 1993, 1996, 1998, 2000, 2002, 2004, 2006.
Reviewer for the ESPRIT Basic Research Action, European Union, 1992, 1993
Reviewer for European Commission, EC Framework Programme IV, Information Technologies, 1995, 1996
Program Committee, Workshop on Information Technology ESPRIT/NSF/DARPA, National Academy of Sciences, 1992
Program Co-chair, NSF/DARPA Workshop on Machine Learning and Computer Vision, October, 1992
Program Co-chair, IEEE CVPR Conference, New York, New York, 1993
Program Co-chair, IEEE Workshop on Qualitative Vision, 1993
Program Chair, International Conference on Pattern Recognition (ICPR96), Vienna, 1996
Program Committee, Workshop on Vision and Action, Kiel, Germany, 1997
Program Co-chair, International Conference on Pattern Recognition (ICPR00), Barcelona, 2000
Reviewer for European Commission, Research Program on Visualization, 1999
Program Co-chair, 2nd International Symposium on 3D Photography, Visualization and Transmission, Sept. 2004, Thessaloniki, Greece
Reviewer for the European Program on Cognitive Systems, Brussels, Belgium, 2007-2013
Program co-Chair, NSF Workshop on Visual Navigation, May 2007, Pasadena, CA
Program co-Chair, Workshop on the Active Vision of Humanoids, Intl Conference on Humanoid Robotics, Pittsburgh, PA, 2007
Program co-Chair, AAAI Workshop on Language-Action Tools for Artificial Agents, San Fransisco, 2011
Area Chair, ICRA (Intl Conference on Robotics and Automation) 2013, Karsruhe, Germany
Member, Award Committee ICRA 2013
Area Chair, IROS (Intelligent Robots and Systems) 2013, Tokyo, Japan
Area Chair, ICCV (International Conference on Computer Vision) 2017, Italy
Area Chair, ICRA (Intl Conference on Robotics and Automation) 2019, Montreal, Canada

AWARDS AND HONOURS

IBM Predoctoral Fellowship, 1985-1986
Marr Prize Honorable Mention Award, 1st International Conference on Computer Vision, June 1987, for his work on Active Vision
Presidential Young Investigator Award, Directorate of Robotics and Machine Intelligence, National Science Foundation, 1990
Member, National Research Council of the National Academy of Sciences, Committee on Vision, 1993-1996
Member, New York Academy of Sciences
Bodossaki Award for Computational Vision and Image Processing, 1993
GRB Summer Research Award, 1999

COURSES TAUGHT

2018-2021		I have taught the undergraduate and graduate Computer Vision courses
Fall 2017	CMSC828	Perception and Planning for Aerial Robotics
1999-2016		I have taught the undergraduate and graduate Computer Vision courses
Fall 1999	CMSC426	Computer Vision and Robotics
Spring 1999	CMSC426	Computer Processing of Pictorial Information
Fall 1998	CMSC828	3D Video and Photography
Spring 1998	CMSC426	Computer Vision and Image Processing
Spring 1998	CMSC426	Computer Vision/Image Processing
Fall 1997	CMSC733	Computer Processing of Pictorial Information
Spring 1997	CMSC426	Computer Vision and Image Processing
Fall 1996	CMSC620	Artificial Intelligence
Spring 1996	CMSC828	Graduate Seminar on Physical Space and Perceptual Space
Fall 1995	CMSC733	Computer Processing of Pictorial Information
Spring 1995	CMSC150	Introduction to Discrete Structures
Fall 1994	CMSC426	Computer Vision/Image Processing
Spring 1993	CMSC733	Computer Processing of Pictorial Information: Reconstruction
Fall 1992	CMSC828	Seminar on Sensory Feedback Robotics
Spring 1992	CMSC150	Introduction to Discrete Structures
Fall 1991	CMSC150	Introduction to Discrete Structures
Fall 1990	CMSC733	Computer Processing of Pictorial Information: Navigation
Spring 1990	CMSC150	Introduction to Discrete Structures
Spring 1989	CMSC620	Artificial Intelligence
Fall 1988	CMSC828	Graduate Seminar in Photogrammetry and Computer Vision
Spring 1988	CMSC426	Computer Vision/Image Processing
Fall 1987	CMSC620	Artificial Intelligence
Spring 1987	CMSC828	Graduate Seminar in Learning
Fall 1986	CMSC426	Computer Vision/Image Processing

UNIVERSITY SERVICE

09/1986-present	Member	Graduate Admission Committee
09/1986-present	Member	Information Processing Field Committee
1990-1991	Chairman	Ph.D. Comprehensive Examination Committee
03/1992	Member	Technology Advancement Program Sreening Panel
09/1990-1995	Member	Committee on the Advancement of Undergraduate Education
1990-1991	Member	Department Colloquium Committee
1988	Member	Service Course Committee
1989-1990	Organizer	UMIACS Lecture Series on Computer Vision
1991-present	President	Pegasus Hellenic Undergraduate Society
1994-2003	Member	Programs, Courses and Curriculum College Committee
1994-present	Member	Vision and Geometry Field Committee
1998-2000	Member	College APT Appointments and Promotions Committee
2000-2002	Chair	APT Committee, Dept. of Computer Science
2006-2008	Member	Academic Honesty Committee
2014-2017	Senator	Teaching Evaluation Committee
2016	Chair	Iribe Chair Committee
2016	Chair	Awards Committee

PUBLICATIONS: BOOKS AND CHAPTERS

J. Aloimonos and C.M. Brown, *"Robust computation of intrinsic images from multiple cues,"* in Advances in Computer Vision, Lawrence Erlbaum Associates, 115-163, 1988.

J. Aloimonos and D. Shulman, *"Integration of Visual Modules: An Extension of the Marr Paradigm"*, Academic Press, Boston, 1989.

J. Aloimonos and A. Rosenfeld, *"Visual Recovery,"* in S. Shapiro (Ed.), Encyclopedia of Artificial Intelligence, Wiley, 1992.

Y. Aloimonos (Ed.), *"Active Perception"*, Vol. I of Advances in Computer Vision series, Lawrence Erlbaum Associates, 1993.

Y. Aloimonos, *"Active Vision Revisited,"* in Y. Aloimonos (Ed.), Active Perception, Lawrence Erlbaum Associates, 1993.
Y. Aloimonos and A. Rosenfeld, *"Principles of Computer Vision,"* in T. Young (Ed.), Handbook of Pattern Recognition and Image Processing, Vol. 2, Academic Press, 1993.
T. Dean, J. Allen and Y. Aloimonos, *"Artificial Intelligence: Theory and Practice"* (textbook), The Benjamin Cummings Publishing Co., Menlo Park, 1994.
Y. Aloimonos (Ed.), *"Visual Navigation: From Biological Systems to Unmanned Ground Vehicles"*, Vol. II of Advances in Computer Vision series, Lawrence Erlbaum Associates, 1997.
Y. Aloimonos (Ed.), *"Visual Recognition for Robotic Agents"*, Vol. III of Advances in Computer Vision series, Lawrence Erlbaum Associates, 1997, to appear.
C. Fermüller and Y. Aloimonos, *"The Synthesis of Vision and Action,"* in M. Landy (Ed.), Exploratory Vision: The Active Eye, Springer-Verlag, 1995.
C. Fermüller and Y. Aloimonos, *"Primates, Bees and UGVs in Motion,"* in S. Srinivasan and V. Venkatesh (Eds.), From Living Eyes to Seeing Machines, Cambridge University Press, 1996.
C. Fermüller and Y. Aloimonos, *"Direct Motion Perception,"* in Visual Navigation: From Biological Systems to Unmanned Ground Vehicles, Vol. II of Advances in Computer Vision, Lawrence Erlbaum Associates, 1997.
Y. Aloimonos, *"Visual Navigation: Flies, Bees and UGVs,"* in Visual Navigation: From Biological Systems to Unmanned Ground Vehicles, Vol. II of Advances in Computer Vision, Lawrence Erlbaum Associates, 1997.
R. Bolle, Y. Aloimonos, and C. Fermüller, *"Video Representations,"* invited paper in ACCV95, in S.Z. Li (Ed.), Future Directions in Computer Vision, Lecture Notes in Computer Science, Springer-Verlag, in press.
C. Fermüller, L. Cheong and Y. Aloimonos, *"Geometry of Visual Space Distortion,"* in J.J. Koenderink and G. Sommer (Eds.), Algebraic Frames for the Perception-Action Cycle, Springer-Verlag, 1997.
C. Fermüller and Y. Aloimonos, *"Active Perception,"* in Encyclopedia of Electrical and Electronics Engineering, Wiley, in press.
C. Fermuller and Y. Aloimonos, *"Geometry of Eye Design: Biology and Technology,"* in Multi Image Search and Analysis, Lecture Notes in Computer Science, R. Klette, T. Huang and G. Gimelfarb, (Eds.), Springer Verlag, Heidelberg, 2000.
J. Neumann, C. Fermuller and Y. Aloimonos, *"Animated Heads: From 3D Motion Fields to Action Descriptions,"* in Deformable Avatars, N. and D. Thalmann (Eds.), Kluwer, pg. 1-12, 2001.
B. Stuart, P. Baker and Y. Aloimonos, *"Towards the Ultimate Motion Capture Technology,"* in Deformable Avatars, N. and D. Thalmann (Eds.), Kluwer, 2001.
C. Fermuller and Y. Aloimonos, *"Statistics Explains Geometrical Optical Illusions,"* in L. S. Davis (Ed.), Foundations of Image Understanding, Kluwer, 2001.
A. S. Ogale, C. Fermüller, and Y. Aloimonos, *"Detecting independent 3D movement in Handbook of Geometric Computing Applications in Pattern Recognition"*, Computer Vision, Neural computing, and Robotics, E. Bayro-Corrochano, Ed., Springer Verlag, March 2005
Y. Aloimonos, *"Multicamera networks: new eyes"*, in H. Aghahan and A Cavallaro (Eds.), Multi-Camera Networks: Concepts and Applications, Elsevier, in press.
Y Aloimonos, G Guerra-Filho, A Ogale, *"The language of action: a new tool for human-centric interfaces"*, Human Centric Interfaces for Ambient Intelligence, H. Aghahan, J. Augusto, R. Delgado (Eds.), Academic Press, 2010, pp. 95-131.
K. Zampogiannis, K. Ganguly, C. Fermuller and Y. Aloimonos, *"Vision During Action: Extracting contact and motion from manipulation videos - towards parsing human activity"*, in Modelling Human Motion, N. Noceti, A. Sciutti and F. Rea (Eds), Springer, 2020.

PUBLICATIONS: ARTICLES IN JOURNALS

1. **C.M. Brown, J. Aloimonos, A. Basu,** *"Contour, texture, shape and motion,"* Pattern Recognition Letters 5, 151-168, North Holland, 1987.
2. **J. Aloimonos,** *"Shape from texture,"* Biological Cybernetics 58, 345-360, 1988.
3. **J. Aloimonos and M. Swain,** *"Shape from patterns: Regularization,"* International Journal of Computer Vision 2, 171-187, 1988.
4. **J. Aloimonos, I. Weiss and A. Bandyopadhyay,** *"Active vision,"* International Journal of Computer Vision 1, 333-356, 1988.
5. **J. Aloimonos,** *"Visual shape computation,"* Proceedings of the IEEE 76, 899-916, 1988.
6. **D. Shulman and J. Aloimonos,** *"Nonrigid motion interpretation: A regularized approach,"* Proc. Royal

Society of London B 233, 217-234, 1988.

7. **R. Nelson and J. Aloimonos,** *"Finding motion parameters from spherical flow fields (or the advantages of having eyes in the back of your head),"* Biological Cybernetics 58, 261-273, 1988.
8. **R. Nelson and J Aloimonos,** *"Using flow field divergence for obstacle avoidance in visual navigation,"* IEEE Transactions on PAMI 11, 1102-1106, 1989.
9. **J. Aloimonos and C.M. Brown,** *"On the kinetic depth effect,"* Biological Cybernetics 60, 445-455, 1989.
10. **J. Aloimonos and D. Shulman,** *"Learning early vision computations,"* Journal of the Optical Society of America A 6, 906-914, 1989.
11. **J. Aloimonos,** *"Unifying shading and texture through an active observer,"* Proc. Royal Society of London B 238, 25-37, 1989.
12. **A. Basu and J. Aloimonos**, *"A robust, correspondenceless, translation-determining algorithm,"* International Journal of Robotics Research 9, 35-59, 1990.
13. **J. Aloimonos and J.-Y. Herv,** *"Correspondenceless detection of depth and motion for a planar surface,"* IEEE Transactions on PAMI 12, 504-510, 1990.
14. **M. Spetsakis and J. Aloimonos,** *"Structure from motion using line correspondences,"* International Journal of Computer Vision 4, 171-183, 1990.
15. **J. Aloimonos,** *"Perspective approximations,"* Image and Vision Computing 8, 177-192, 1990.
16. **J. Aloimonos and L. Huang**, "Motion-boundary illusions," Proc. Royal Society of London B 242, 75-81, 1990.
17. **A. Bandopadhay and J. Aloimonos,** *"Image motion estimation by clustering,"* International Journal of Imaging Science and Technology 2, 345-355, 1990.
18. **J. Aloimonos and D. Tsakiris,** *"On the visual mathematics of tracking,"* Image and Vision Computing 9, 235-251, 1991.
19. **J. Aloimonos and A. Rosenfeld,** *"Reply: A response to Ignorance, Myopia and Naivete in Computer Vision by R.C. Jain and T.O. Binford,"* CVGIP 53, 120-124, 1991.
20. **M. Spetsakis and J. Aloimonos,** *"A multiframe approach to visual motion perception,"* International Journal of Computer Vision 6, 245-255, 1991.
21. **J. Aloimonos and A. Rosenfeld,** *"Computer vision,"* Science 253, 1181-1324, 1991. R. Sharma and J. Aloimonos, "Coordinated motion planning: The warehousemans problem with constraints on free space," IEEE Transactions on Systems, Man and Cybernetics 22, 130-141, 1992.
22. **M. Spetsakis and Y. Aloimonos,** *"Optimal computing of structure from motion using point correspondences in two frames,"* IEEE Transactions on PAMI 14, 959-964, 1992.
23. **C. Fermüller and Y. Aloimonos**, *"Tracking facilitates 3-D motion estimation,"* Biological Cybernetics 67, 259-268, 1992.
24. **Y. Aloimonos,** *"Is complete visual recovery necessary? Obstacle avoidance without passive ranging,"* Journal of Robotic Systems 9, 843-858, 1992.
25. **Y. Aloimonos**, (Ed.), *"Purposive and Qualitative Active Vision"*, Special Issue of CVGIP: Image Understanding 56, 1992.
26. **Y. Aloimonos,** *"Purposive active vision,"* CVGIP: Image Understanding, 840-850, August 1992.
27. **R. Sharma, D. Mount, and Y. Aloimonos,** *"Probabilistic analysis of some navigation strategies in a dynamic environment,"* IEEE Transactions on Systems, Man and Cybernetics 23(5):1465-1474, September 1993.
28. **C. Fermüller and Y. Aloimonos,** *"The role of fixation on visual motion analysis,"* International Journal of Computer Vision 11, 165-186, 1993.
29. **L. Huang and Y. Aloimonos,** *"How normal flow constrains relative depth for an active observer,"* Image and Vision Computing 12, 435-445, September 1994.

30. **Y. Aloimonos,** *"What I have learned,"* CVGIP: Image Understanding, 74-85, July 1994.

31. **Y. Aloimonos and Z. Duric,** *"Estimating the heading direction using normal flow,"* International Journal of Computer Vision 13(1), 33-56, 1994.

32. **Y. Aloimonos,** *"Qualitative vision,"* International Journal of Computer Vision 14, 115-117, 1995.

33. **Y. Aloimonos** (Ed.), *"Special Issue on Qualitative Vision"*, International Journal of Computer Vision 14, 115-201, 1995.

34. **C. Fermüller and Y. Aloimonos,** *"Qualitative egomotion,"* International Journal of Computer Vision 15, 7-29, 1995.

35. **C. Fermüller and Y Aloimonos,** *"Vision and action,"* Image and Vision Computing 13, 725-744, 1995.

36. **S. Negahdaripour, B.Y. Hayashi, and Y. Aloimonos,** *"Direct motion stereo for passive navigation,"* IEEE Transactions on Robotics and Automation 11(6):829-843, December 1995.

37. **C. Fermüller and Y. Aloimonos**, "Direct perception of three-dimensional motion from patterns of visual motion," Science 270, 1973-1976, 1995.

38. **Y. Aloimonos, C. Fermüller, and A. Rosenfeld,** *"Seeing and understanding: Representing the visual world,"* ACM Computing Surveys 27(3):307-309, 1995.

39. **R. Sharma and Y. Aloimonos,** *"Early detection of independent motion from active control of normal image flow patterns,"* IEEE Transactions on Systems, Man and Cybernetics 26(2), February 1996.

40. **C. Fermüller and Y. Aloimonos,** *"On the geometry of visual correspondence,"* International Journal of Computer Vision 21(3):223-247, 1997.

41. **C. Fermüller, R. Pless and Y. Aloimonos,** *"Families of stationary patterns producing illusory movement: Insights into the visual system,"* Proc. Royal Society of London B 264:795-806, 1997.

42. **L. Cheong, C. Fermüller and Y. Aloimonos,** *"Effects of errors in the viewing geometry on shape estimation,"* Computer Vision and Image Understanding, 71:356-372, 1998.

43. **C. Fermüller and Y. Aloimonos,** *"Ambiguity in structure from motion: Sphere versus plane,"* International Journal of Computer Vision 28(2):137-154, 1998.

44. **C. Fermüller, L. Cheong and Y. Aloimonos,** *"Visual space distortion,"* Biological Cybernetics 77:323-337, 1997.

45. **C. Fermüller, L. Cheong and Y. Aloimonos,** *"3D motion and shape representations in visual servo control,"* International Journal of Robotics Research 17:4-18, 1998.

46. **T. Brodsk, C. Fermüller and Y. Aloimonos,** *"Directions of Motion Fields are Hardly Ever Ambiguous,"* International Journal of Computer Vision 26:5-24, 1998.

47. **C. Fermüller and Y. Aloimonos,** *"Observability of 3D Motion,"* International Journal of Computer Vision, 37(1):43-62, June 2000.

48. **C. Fermüller, R. Pless and Y. Aloimonos,** *"The Ouchi Illusion as an Artifact of Biased Flow Estimation,"* Vision Research, 40:77-96, 2000.

49. **C. Fermüller, T. Brodsk and Y. Aloimonos** *"New Eyes for Building Models from Video,"* Computational Geometry: Theory and Applications, 15:3-23, 2000.

50. **T. Brodsk, C. Fermüller and Y. Aloimonos** *"Structure from Motion: Beyond the Epipolar Constraint,"* International Journal of Computer Vision, 37(3):231-258, June 2000.

51. **Y. Aloimonos and C. Fermüller,** *"On the Cognitive Impenetrability of Visual Space,"* a commentary in Behavioral and Brain Sciences 22:366-367, 1999.

52. **R. Pless, T. Brodsky and Y. Aloimonos,** *"Detecting Independent Motion: The Statistics of Temporal Continuity,"* IEEE Transactions on Pattern Analysis and Machine Intelligence, 22(8):768-773, August 2000.

53. **C. Fermüller, D. Shulman and Y. Aloimonos,** *"The Statistics of Optical Flow,"* Computer Vision and Image Understanding, 82:1-32, 2001.

54. **C. Fermüller, P. Baker and Y. Aloimonos** *"Visual Space Time Geometry: A Tool for Perception and Imagination,"* Proceedings of the IEEE, 90(5):1113-1135, July 2002.

55. **J. Neumann and Y. Aloimonos**, *"Spatio-temporal stereo using multiresolution subdivision surfaces"*, Intl. Journal of Computer Vision, 47(1/2/3):181-193, 2002.

56. **Y. Aloimonos,** *"Computational Video"*, The Visual Computer, 19(6): 355-359 (2003).

57. **J. Neumann, C. Fermüller and Y. Aloimonos,** *"A hierarchy of Cameras for 3D Photography"*, Computer Vision and Image Understanding, 47(1/2/3):181-193, 2002.

58. **A. S. Ogale, C. Fermüller, and Y. Aloimonos**, *"Motion segmentation using occlusions"*, IEEE Transactions on Pattern Analysis and Machine Intelligence , vol. 27, no.6, 988-992, June 2005.

59. **A. S. Ogale and Y. Aloimonos**, *"Shape and the stereo correspondence problem"*, International Journal of Computer Vision, vol. 65, no. 1, October 2005.

60. **A. S. Ogale and Y. Aloimonos,** *"A roadmap to the integration of early visual modules"*, International Journal of Computer Vision, Special issue on early cognitive vision, vol. 72, no. 1, 9-25, Apr 2007.

61. **J. Domke, Y. Aloimonos,** *"Image Transformations and Blurring"* IEEE Transactions on Pattern Analysis and Machine Intelligence, 31(5): 811-823 (2009).

62. **Y. Aloimonos**, *A language for Human Action*, Journal of Vision, Vol. 8, No 6, 2008

63. **Y. Aloimonos**, *Sensory Grammars for Sensor Networks*, Journal of Ambient Intelligence and Smart Environments, JAISE 1(1): 15-21 (2009).

64. **G. Guerra-Filho, Y. Aloimonos,** *"A Language for Human Action"*. IEEE Computer 40, (5): 42-51 (2007)

65. **G. Guerra-Filho, Y. Aloimonos**, *"Understanding visuo-motor primitives for motion synthesis and analysis"* Journal of Visualization and Computer Animation 17, (3-4): 207-217 (2006)

66. **J. Domke and Y. Aloimonos,** *"A Probabilistic Notion of Camera Geometry: Calibrated vs. Uncalibrated"*, Journal of Photogrammetrie, Fernerkundung and Geoinformation, 2007, 1, 25-33.

67. **Ajay K. Mishra, Yiannis Aloimonos,** *"Active Segmentation"*, I. J. Humanoid Robotics 6 (3): 361-386 (2009).

68. **Ajay K. Mishra, Yiannis Aloimonos, Loong Fah Cheong, Ashraf A. Kassim:** *"Active Visual Segmentation"*, IEEE Trans. Pattern Anal. Mach. Intell. 34 (4): 639-653 (2012).

69. **Pastra K. and Aloimonos Y. (2012),** *"The Minimalist Grammar of Action"*, Philosophical Transactions of the Royal Society B, 367(1585):103.

70. **Gutemberg Guerra-Filho and Yiannis Aloimonos. (2013).** *"The Syntax of Human Actions and Interactions"*. Journal of Neurolinguistics, Volume 25, Issue 5, September 2012, Pages 500-514.

71. **A D'Ausilio, L Badino, Y Li, S Tokay, L Craighero, R Canto, Y Aloimonos, L. Fadiga,** *"Leadership in orchestra emerges from the causal relationships of movement kinematics"* PloSI 7 (5).

72. **C Fermuller, CL Teo, Y Aloimonos,** *"Border ownership assignment in real images"*, Journal of vision 15 (12), 763-763

73. **Y Yang, C Fermüller, Y Aloimonos, A Guha,** *"A Cognitive System for Understanding Human Manipulation Actions"*, Advances in Cognitive Systems 3, 67-86, 2014.

74. **F Barranco, C Fermuller, Y Aloimonos**, *"Contour Motion Estimation for Asynchronous Event-Driven Cameras"*, Proceedings of the IEEE 102 (10), 1537-1556, 2014.

75. **Y. Aloimonos and C. Fermuller,** *"The Cognitive Dialogue: A new model for Vision implementing commonsense"*, invited IDEA paper, Image and Vision Computing, 2014.

76. **CL Teo, C Fermüller, Y Aloimonos**, *"A Gestaltist approach to contour-based object recognition: Combining bottom-up and top-down cues"*, The International Journal of Robotics Research, 2015.

77. **Y Zhang, Y Yang, C Fermuller, Y Aloimonos,** *"Does the grasp type reveal action intention?"*, Journal of Vision 15 (12), 1153-1153.

78. **Ruzena Bajcsy, Yiannis Aloimonos, John K. Tsotsos.** *"Revisiting active perception".* Autonomous Robots. Pp 1-20, 2017.

79. **P Wiriyathammbhum, D. Summers-Stay, C. Fermüller, Y. Aloimonos,** *"Computer Vision and Natural Language Processing: Recent Approaches in Multimedia and Robotics"*, ACM Computing Surveys (CSUR)Vol. 49. Issue 4, Feb. 2017.

80. **Somak Aditya, Chitta Baral, Yezhou Yang, Yiannis Aloimonos and Cornelia Fermüller (2016).** *"DeepIU: An Architecture for Image Understanding"*, Advances in Cognitive Systems.

81. **F. Barranco, C. Fermüller, Y. Aloimonos, T. Delbruck, 2015,** *"A Dataset for Visual Navigation with Neuromorphic Methods,"* Front Neurosci. 2016; 10: 49.

82. **S. Aditya; Y.Yang, C. Baral, Y Aloimonos, C Fermuller,** *"Image Understanding using Vision and Reasoning through Scene Description Graph"*, Computer Vision and Image Understanding, Dec. 2017.

83. **M. Sionti, T. Schack and Y.Aloimonos**, *"An Embodied Tutoring System for Literal vs. Metaphorical Concepts"*, Front. Psychol., 28 November 2018

84. **A. Mitrokhin*, P. Sutor*, C. Fermüller and Y. Aloimonos**, *"Learning sensorimotor control with neuromorphic sensors: towards hyper-dimensional active perception,"* Science Robotics 15 May 2019: Vol. 4, Issue 30.

85. **Huai-Jen Liang, Nitin J. Sanket, C. Fermüller, Y. Aloimonos,** *"SalientDSO: Bringing Attention to Direct Sparse Odometry"*, IEEE Transactions on Automation Science and Engineering, pg1-8, 20 March 2019.

86. **S. Krishnagopal, Y. Aloimonos, and M. Girvan,** *"Similarity Learning and Generalization with Limited Data: A Reservoir Computing Approach"*, Complexity, Volume 2018, Article ID 6953836, 15 pages, 2018.

87. **Zampogiannis, K., Fermüller, C. and Aloimonos, Y.,** 2018. *"Topology-Aware Non-Rigid Point Cloud Registration"*, IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI), 2020.

88. **Y. Aloimonos,** *"A Dialogue on Autonomy"*, Advances in Cognitive Systems 7 (2018) 312.

89. **Peter Sutor, Anton Mitrokhin, Douglas Summers-Stay, Cornelia Fermuller, Yiannis Aloimonos**, *Symbolic Representation and Learning with Hyperdimensional Computing.* Frontiers in Robotics and AI, 7, 63, 2020.

90. **Nitin J. Sanket, Chahat Deep Singh, Cornelia Fermller, and Yiannis Aloimonos**. *PRGFlow: Benchmarking SWAP-Aware Unified Deep Visual Inertial Odometry*, Electronics Letters 57, (16), 614-617.

91. **Eadom Dessalene, Chinmaya Devaraj, Michael Maynord, Cornelia Fermuller, and Yiannis Aloi-monos**, , *Forecasting Action through contact representations from first person video,* IEEE Trans. of Pattern Analysis and Machine Intelligence (PAMI), 2021.

92. **Yiannis Aloimonos and Cornelia Fermuller**, *"A bug's eye view"*, Science Robotics, July 2020.

93. A **Gasteratos, L Bampis, P Galambos, K Alexis, Y Aloimonos**, *Guest Editorial: Deep Learning and Robotics,* Electronics Letters, 2021.

94. **KB Kidambi, C Fermuller, Y Aloimonos, H Xu**, *Robust Nonlinear Control-Based Trajectory Tracking for Quadrotors Under Uncertainty*, IEEE Control Systems Letters 5 (6), 2042-2047, 2020.

95. **F Barranco, C Fermuller, Y Aloimonos, E Ros**, *Joint direct estimation of 3D geometry and 3D motion using spatio temporal gradients*, Pattern Recognition 113, 2021.

PUBLICATIONS: SELECTED CONFERENCE PROCEEDINGS

1. J. Aloimonos and C.M. Brown, The relationship between optic flow and surface orientation, Proc. 7th International Conference on Pattern Recognition (ICPR84), Montreal, Canada, 542-546, 1984.

2. J. Aloimonos and C.M. Brown, Direct processing of curvilinear sensor motion form a sequence of perspective images, Proc. Workshop on Computer Vision: Representation and Control, 1984, Annapolis, MD, 72-77.

3. J. Aloimonos and M. Swain, Shape from texture, Proc. International Joint Conference on Artificial Intelligence (IJCAI85), 1985.
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PUBLICATIONS: SELECTED INVITED PRESENTATIONS AND COLLOQUIA

1. "Computing Intrinsic Images," Department of Computer Science, University of Texas at Austin (April 1986).
2. "On Low-Level Visual Computations," Courant Institute of Mathematical Sciences, New York University (March 1986).
3. "On Low-Level Visual Computations," Department of Computer Science, University of Minnesota (April 1986).
4. "Shape from Patterns," Department of Computer Science, Columbia University (November 1986).
5. "Shape from Texture," Department of Electrical Engineering, State University of New York at Stony Brook (December 1986).
6. "Perception of Motion: Fact and Fiction," 12th Annual Interdisciplinary Conference, Jackson Hole, Wyoming (January 1987).
7. "Learning Shape Computations," Artificial Intelligence Laboratory, Massachusetts Institute of Technology (April 1987).
8. "Aspects of Active Vision," Department of Computer and Information Sciences, University of Pennsylvania (April 1987).
9. "Tutorial on Computer Vision," (Robotics Week) Institute for Mathematics and its Applications, University of Minnesota (August 1987).
10. "Stability of Visual Algorithms," 1st Workshop on the Study of Evaluation, UCLA (September 1987).
11. "Approximate Solutions to Intractable Vision Problems," Courant Institute of Mathematical Science, New York University (October 1987).
12. "Active Vision," 41st Annual Meeting, Soc. Phot. Sci. and Eng., Crystal City, Washington, D.C. (May 1988).
13. "On the Foundations of Active Vision," Workshop on Exploratory Vision: The active eye, University of Michigan (June 1988).
14. "On Visual Homing," Conference on Pattern Recognition for Advanced Missile Systems (November 1988).
15. "The Maryland Approach to Image Understanding," Kopenhagen University, Denmark (August 1988).
16. "Integration of Visual Modules: An Extension of the Marr Paradigm," Department of Computer and Information Sciences, University of Pennsylvania (March 1989).
17. "Unification and Integration of Visual Modules," Department of Computer Science, Stanford University, (March 1989).
18. "Integration and Unification of Visual Modules," DARPA Image Understanding Workshop, Stanford, CA (May 1989).
19. "Does the Marr-Poggio Paradigm Need to Be Defended? A Response to V.J. Ramachandran," 1989 Stockholm Workshop on Computational Vision, Rosenon Island, Sweden (August 1989).

20. "Reconstructing a Scene from Two Noisy Projections," Royal Institute of Technology, Stockholm, Sweden (August 1989).
21. "Learning How to Compute Shape," York University, Toronto, Canada (February 1990).
22. "Purposive and Qualitative Active Vision," ESPRIT Workshop on Coordination of Perception, Palais de Congres, Antibes, France (April 1990).
23. "Catastrophe Theory and Computational Vision," Dept. of Computer and Information Science, University of Pennsylvania, Philadelphia, PA (April 1990).
24. "Purposive Navigation," Dept. of Computer Science, University of Toronto, Toronto, Canada (May 1990).
25. "Robust Active Vision," Machine Intelligence Group, IBM T.J. Watson Research Center, New York (May 1990).
26. "Understanding the World: Quantitative and Qualitative Approaches," AFOSR Workshop on the Encounter of Mathematics and Computer Vision, University of Pennsylvania, Philadelphia, PA (May 1990).
27. "Recognition from Images," Caltech, Pasadena, CA, (May 1990).
28. "Maryland Progress in Image Understanding," DARPA Image Understanding Workshop, Pittsburgh, PA (September 1990).
29. "Purposive Computer Vision," Department of Computer Science, SUNY at Buffalo, NY (October 1990).
30. "Visually Guided Behaviors," AFCET Symposium for the retirement of Prof. J.-C. Simon, Paris, France (October 1990).
31. "Purposive Vision," 16th Annual Interdisciplinary Conference, Jackson Hole, Wyoming (January 1991).
32. "See Me, Touch Me, Feel Me," Department of Computer Science, University of Alberta, Edmonton, Alberta, Canada (February 1991).
33. "Principles of Systems Neurophysiology," Royal Institute of Technology, Stockholm, Sweden (March 1991).
34. "Modular vs. Labyrinthic Vision Systems," NSF Workshop on Challenges in Computer Vision, Maui, Hawaii (June 1991).
35. "Purposive Interpretation of Visual Motion," Workshop on Computational Vision, Stockholm, Sweden (August 1991).
36. "What Is a Visual Behavior? " NSF Workshop on Active Vision, Chicago, IL (August 1991).
37. "Towards Behavioral Vision," Department of Electrical Engineering, Linkoping University, Sweden (September 1991).
38. "Qualitative Vision," Department of Computer Science, Yale University (September 1991).
39. "Purposive Vision," Technical University of Vienna (May 1992).
40. "What is Visual Learning? " Special Panel on Learning, International Conference on Pattern Recognition (August 1992).
41. "Recognizing Motion Patterns," DARPA PI Meeting, Snowbird, Utah (September 1992). "Perception, Action and the Design of Seeing Systems," Department of Computer Science, Kaiserslautern University, Germany (October 1992).
42. "A Methodology for Building Visual Systems," Department of Computer Science, University of Crete, Hellas (October 1992).
43. "Flies, Bees and UGVs (Unmanned Ground Vehicles): What Can Engineers Learn from Insect Vision," Department of Physics, University of Barcelona, SpainA talk given on the occasion of the 25 years of the University of Barcelona (November 1993).
44. " Computational Studies on Navigating Vision Systems," German School of Artificial Intelligence (KIFS), Goenesee, Germany (March 1994).
45. "Purposive Recognition," Department of Physics and Department of Biology, University of Bremen, Germany (April 1994).

46. "Qualitative Vision: Reconstruction without Calibration," Department of Informatics, Erlangen University, Nurenberg, Germany (April 1994).

47. "The Geometry of Visual Correspondence," Department of Computer Sciences, University of Kiel, Germany (March 1994).

48. "Noetics: Vision and Action," National Foundation for Research, Athens, Greece (March 1994).

49. "Handling Motion Related Queries in Video Databases," Department of Electrical Engineering and Computer Science, University of Patras, Patras, Greece (March 1994).

50. "A Vision of the Mind," Academy of Athens, Athens, Greece (March 1994).

51. "The Geometry of Visual Motion," Artificial Intelligence Laboratory, Massachusetts Institute of Technology (April 1994).

52. "Qualitative Techniques in Visual Navigation," German Conference in Pattern Recognition and Image Processing, Vienna, Austria (September 1994).

53. "Primates, Bees and UGVs (Unmanned Ground Vehicles)," NSF/ESPRIT Workshop on Computational Vision, Jerusalem (December 1994).

54. "Analysis of Visual Motion and Virtual Reality," Royal Institute of Technology, Stockholm, Sweden (January 1995).

55. "Principles of Visuomotion Coordination," Datalogisk Institut, University of Kopenhagen, Denmark (April 1995).

56. "Vision, Action and Recognition," Symposium on Recent Trends in Computer Science, Max Planck Institut fur Informatik, Saarbucken, Germany (June 1995).

57. "Ordinal Vision," a Socratic dialogue delivered with C. Fermüller at the 1995 Stockholm Workshop in Computational Vision, Rosenon Island, Stockholm (August 1995).

58. "Theories of Visual Perception," after-dinner speech at CAIP95 (Computer Analysis of Images and Patterns), Prague, Czech Republic (September 1995).

59. "A Computational Theory of Direct Perception," Department of Computer Science, Yale University (November 1995).

60. "Applications of Computer Vision to the Video World," IBM T.J. Watson Research Center (December 1995).

61. "Direct Motion Algorithms," panel discussion, EUROPACE televised computer vision course, Leuven, Belgium (February 1997).

62. "Geometry of Visual Space," Workshop on Vision and Action, Kiel, Germany (September 1997).

63. "Geometric Constraints on Cognitive Architectures," University of Bielefeld, Germany (December 1997).

64. "The Geometry of Video," Department of Computer Science, Pennsylvania State University (December 1997).

65. "Computational Video Geometry: Theory and Applications," IBM T. J. Watson Research Center (February 1998).

66. "Principles of 3D Video," National Institute of Standards and Technology (April 1998).

67. "The Geometry of Motion Capture," University of Geneva, Switzerland (December 1998).

68. "On the Geometry of Thought," Socratic dialogue given at the Cognitive Science Colloquium, University of Maryland (December 1998).

69. "The Geometry of Thought: A Search for the Universal Grammar," Socratic dialogue to be delivered with C. Fermüller at the Cognitive Science Colloquium, University of Pennsylvania (December 1999).

70. Invited talk at Seminar on Multi-image Search, Filtering, Reasoning and Visualization, Schloss Dagstuhl, Wadern, Germany (March 2000).

71. "Visual Space-Time Geometry", Robotics Institute, Carnegie-Mellon University (October 2001).

72. "Vision as a Chicken-Egg Problem", Robotics Institute, Carnegie-Mellon University (April 2003).

73. "New Eyes", Artificial Intelligence Laboratory, MIT, (May 2002).

74. "Harmonic Computational Geometry", plenary talk, British Machine Vision Conference, Cardiff, (September 2002).

75. "Video processing: From motion descriptions to video indexing", keynote address, DIMACS Workshop on Video Indexing, Rutgers Univ., (October 2002).

76. "Motion patterns", Distinguished Lecture, Brown University, (April 2002).

77. "On the Geometry of the Mind", keynote address, British AI Society Convention: Cognition in Animals and Machines, Aberystwyth, (March 2003).

78. "Non-commutative harmonic analysis and action representations", NATO Workshop on Non commutative algebra and applications, IlChiocco, Italy (July 2003).

79. "Perception, Action and Cognition", Department of Engineering, University of Genoa, (July 2003)

80. "Vision is a chicken-egg problem", Colloquium of the Engineering School, Beckman Institute, University of Illinois at Urbana-Champaign, (December 2003).

81. "The loops of vision", Distinguished Lecture, Center for Computer Vision and Graphics, Columbia University, (December 2003).

82. "On the structure of the motion pathway in primates: a view through illusions and geometry", Medical School, Department of Neurobiology, Washington University, St. Louis (December 2003).

83. "Compositional Vision", Distinguished Lecture, Center for Visual Perception, University of Texas at Austin, (March 2004).

84. "Aristotles Dream: The Geometry of Action and Cognition", AI seminar, Department of Computer Science, University of Texas at Austin, (March 2004).

85. "The Loops of Visual Correspondence", Keynote Address, Workshop on Early Cognitive Vision, England, (May 2004).

86. "Understanding Action: The Visuomotor Hypothesis", Cognitive Science Colloquium, University of Massachusetts at Amherst, (May 2004).

87. "Human Action: Developing the Praxicon," National Science Foundation, invited talk in the Human and Social Dynamics Program, October 2007.

88. "Grammars of Human Movement", Colloquium at the Institute for Language and Speech Processing, Athens, Greece, October 2007

89. "Language and action", OMLL Meeting of the European Science Foundation (Origin of Man, Language and Languages), Rome, Dec 2007.

90. " Two laws of humanoids", Workshop on the Active Vision of Humanoids, Pittsburgh, Dec. 2007.

91. "Signals and Symbols in Human Action" , International Symposium on Image and Signal Processing and Analysis, Sep. 2007, Istanbul, Turkey. (keynote address).

92. "Hands, mouths and words", 1st Intl Conference on Cognitive Systems, Karlsruhe, Germany, April 2008. (keynote address).

93. "Sensorimotor linguistics", Univ. of Pennsylvania, Cognitive Science Colloquium, May 2008.

94. Aloimonos Y. (May 2008), "The POETICON: languages of sensorimotor experiences", Google Tech Talk, Mountain View, CA.

95. "New approaches to segmentation", Intl Workshop on Mathematics and Image Processing, Singapore, July 2008.

96. "A new segmentation constraint and the theory of swirling fields", AFOSR Workshop on Surface Representation in Mid-Level Vision, Smith Kettlewell Institute, San Fransisco, CA, September 2008).

97. “Languages of motor synergies: a new approach to human action”, Intl Conference on Distributed Smart Cameras, Stanford, CA, Sept. 2008 (keynote address).

98. ”Segmenting the world visually”, European Conference in Visual Perception, ECVP, Regensburg, Germany, (August 2009).

99. “Active Segmentation”, Workshop on Trends in Computer Vision,Prague, Czech Republic. (July 2009),

100. “Perceptual competences of humanoids”, Workshop Humanoids@Home, Karlsruhe, Germany. (October 2009),

101. “Human Activity Languages: Theory and Applications”, Human Motion Conference, Aalborg Univ., Odense, Denmark, (November 2009). (keynote).

102. “Models of action”, Colloquium, Carnegie-Mellon Univ., Robotics Institute, Nov. 2010.

103. “Patterns of thought”, Colloquium, Department of Applied Math, Brown University (Feb. 2011).

104. “The confluence of computational vision and linguistics”, Workshop on Vision and Language, Univ. of Brighton, UK (Sept. 2011) (keynote).

105. “Vision, Action and Cognition”, AAAI Workshop on Language-Action Tools for Cognitive Artificial Agents, AAAI 2011 (Aug. 2011).

106. “The manipulation grammar”, IEEE Intl Conference on Humanoid Robotics, Atlanta, GA, October 2013 (keynote).

107. “Action grammars and their parsers”, Colloquium, Cognitive Science Program, University of Delaware, November 2013.

108. “Segmentation and Recognition”, Spring School on Cognitive Robotics, organized by the European Commission on Cognitive Systems, Athens, Greece, April 2013 (keynote).

109. “The cognitive dialogue architecture”, EuCognition, 2014, Bochum, Germany, 2014. (keynote)

110. “A new model for attention”, Intl Conference on Development and Learning, (ICDL 2014), Genoa, Italy. (keynote)

111. “The Visual Compiler: From visual action to programs”, The 2nd International Symposium on Cognitive Neuroscience Robotics: Before and Beyond Mirror Neurons, Osaka University, Japan, February 2016.

112. “A quantum theory of visual perception”, The DREAM Seminar, Department of Electrical Engineering and Computer Science, University of California, Berkeley, April 2016.

113. “The semantics of manipulation action”, Colloquium, Georgia Institute of Technology, April 2016.

114. “Vision and Language”, Google Natural Language Processing Workshop, May 2106, London, UK.

115. “Action grammars”, British Machine Vision Association Workshop on “Vision for Interaction”, October 2106, London, UK.

116. “A programming language for human action”, Robotics in the 21st Century, Gotingen, Germany September 2016.

117. “The syntax of actions”, public talk in the city of Bremen, Germany, November 2016 (introduced by the minister of technology)

118. “Action grammars in language grounding”, Cognitive Science Conference, Philadelphia, PA, August 2016.

119. ”Vision and Language: The theory of primitives”, Keynote, 3rd Summer School on Integrating Vision and Language: Vision and Language Integration in Cognitive Robotics, Athens, Greece, September 2017.

120. “The Grammars of touch”, invited talk, RSS Workshop on “Revisiting Contact-Turning a Problem into a Solution”, July 2017, Boston, MA.

121. “Parsing an action-developing action descriptions using primitives”, invited talk, 2nd Workshop on Semantic Policy and Action Representations for Autonomous Robots (SPAR), IROS 2017,Vancouver, CA.

122. “Autonomy, Robotics and Cognition: the theory of primitives”, invited talk, 1st International Workshop on Autonomy, Robotics and Cognition, College Park, MD, October 2017.

123. "The theory of primitives in cognitive Robotics", Workshop on Cognitive Robotics on the occasion of Prof. Minoru Asadas retirement, Osaka, Japan, April 2019.

124. "The grammar of forces in manipulation", 2nd International Workshop on Computational Models of Affordance in Robotics, ICRA 2019, Montreal, CA.

125. "Robo Sapiens = Robo Prospectus", Workshop Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens, IROS 2018 (October), Madrid, Spain.

126. "Mind Design: The theory of action grammars, International Symposium on Machine Intelligence for Future Society, Tokyo, Japan 2019.

127. "Robot Learning from Observation", NSF Workshop on Robot Learning, Lehigh University, October 2019.

128. "Experiments on Tactile Flow", Northrop Grumman Symposium, Annaheim CA October 2019

129. "Robots with knowledge", Colloquium, Computer Science Dept., Rutgers University, November 2019

130. "The theory of Therbligs", 2021 ICRA Workshop on Semantic Representations for Robotics through Continuous Interaction and Incremental Learning, Intl Conference on Robotics and Automation, Beijing, May 2021.

131. "Minimalist Cognitive Architectures", Int'l Workshop on Cognitive Architectures for Robot Agents: Current capabilities, future enhancements and prospects for collaborative development, Bremen, Germany, March 2021.

132. "Autonomy=Integration", International Symposium on Machine Intelligence for Future Society, Tokyo, Japan 2019.

PHD STUDENTS SUPERVISED

Randal C. Nelson	"Visual navigation"	August 1988
Minas E. Spetsakis	"The geometry and statistics of visual motion"	August 1989
John Sullins	"Distributed learning: Motion in constraint space"	May 1990
Anup Basu	"Model-based visual navigation"	August 1990
David Shulman	"A theory of discontinuous regularization"	August 1990
Ehud Rivlin	"Purposive recognition"	December 1992
Larry Huang	"Qualitative visuo-motor coordination"	March 1993
Jean-Yves Herv.	"A theory of hand/eye coordination"	March 1993
Rajeev Sharma	"Visual interception"	March 1993
LoongFah Cheong	"Distortion of space due to perceived motion"	August 1996
Gregory Baratoff	"Qualitative space representations extracted from stereo"	June 1997
Toms Brodsk	"The Video Yardstick"	March 1999
Bradley Stuart	"Visual memories: 3D video"	June 2012.
Robert Pless	"Visual shape"	June 2001
Patrick Baker	"Harmonic Computational Geometry"	December 2006
Jan Neumann	"Eye Design"	2005
Abhijit Ogale	"Visual Correspondence"	June, 2005
Ji Hui	"Statistics of Visual Space"	June 2006
Gutemberg Guerra-Filho	"A linguistic framework for human activity"	2007
Morimichi Nishigaki	"Image segmentation"	June 2012
Yi Li	"Human action synergies"	June 2010
Kostas Bitsakos	"Segmentation and occlusions"	2010
Justin Domke	"Tractable Learning"	2009
Xiaodong Yu	"Bridging the Semantic Gap: Image and Video Understanding by Exploiting Attributes"	Spring 2013

Houngyun Yi	"A framework for automated symmetry detection"	September 2013
Douglas Summer-Stay	"Productive Vision"	October 2013,
Ching Lik Teo	"Computational Mid-Level Vision: From Border Ownership to Categorical Object Recognition"	October 2015
Yezhou Yang	"Manipulation action understanding for observation and execution"	November 2015
Austin Myers.	"From Form to Function: Detecting the Affordance of Tool Parts using Geometric Features and Material Cues"	November 2016
Aleksandrs Ecins	"Seeing behind the scene: Using Symmetry to Reason About Objects in Cluttered Environments"	July 2017
Chengxi Ye	"Evenly cascaded networks"	May 2019
Konstantinos Zampogiannis	"Detecting contact and motion in manipulation videos"	July 2019
Nitin Sanket	"Active Vision based embodied AI Design of micro quadrotors"	August 2021

GRANTS AND AWARDS

Co-Principal Investigator in "Robust Image Understanding: Techniques and Applications"
Agency: DARPA/ISTO
Amount: $1,962,223
Duration: 9/89-9/92

Co-Principal Investigator in "Vision-based Navigation and Recognition"
Agency: DARPA/ISTO
Amount: $2,278,003
Duration: 4/92-3/95

Principal Investigator in "Purposive and Qualitative Vision"
Agency: NSF, Presidential Young Investigator Award (PYI)
Amount: $500,000
Duration: 1990-1995

PYI Corporate funds
Agency: Honeywell Research Co. (Alliant Techsystems, Inc.)
Amount: $50,000
Duration: 9/90-12/92

PYI Corporate funds
Agency: Texas Instruments, Inc.
Amount: $20,000
Duration: 1/91-12/92

PYI Corporate funds
Agency: Sony Corporation
Amount: $25,000
Duration: 8/92-7/93

PYI Corporate funds
Agency: Westinghouse
Amount: $35,000 in equipment
Duration: 1/94-12/95

PYI Corporate funds
Agency: IBM Corporation
Amount: $33,000 in equipment
Duration: 10/95-10/96

Principal Investigator in "NSF-CISE Research Instrumentation Proposal"
Agency: National Science Foundation
Amount: $37,000
Duration: 6/92-11/93

Principal Investigator in "Qualitative Navigation Techniques"
Agency: Office of Naval Research
Amount: $300,000
Duration: 2/93-2/96

Co-Principal Investigator in "Vision and Learning"
Agency: ARPA/SISTO
Amount: $500,000
Duration: 3/93-3/96

Principal Investigator in "Integrated Active Vision for an Unmanned Vehicle" (Consortium with the Universities of Rochester and Pennsylvania, and the National Institute of Standards and Technology)
Agency: ARPA
Amount: $900,000
Duration: 6/93-6/96

Principal Investigator in "Sensory Feedback Robotics"
Agency: Dassault Aviation
Amount: $50,000 French Francs
Duration: 3/95-12/95

Principal Investigator in "Spatiotemporal Representations in Visual Navigation and Object Recognition"
Agency: NATO
Amount: $150,000 Belgian Francs
Duration: 6/95-6/97

Principal Investigator in "3D Approaches to Digital Television: Video Manipulation/Indexing"
Agency: IBM/NIST
Amount: $400,000
Duration: 8/95-8/98

Principal Investigator in "Computational Theories of Direct Perception"
Agency: Office of Naval Research
Amount: $360,000
Duration: 1/1/96-1/1/99

Co-Principal Investigator in "The Keck Laboratory for the Study of Visual Movement"
Agency: The Keck Foundation
Amount: $1,000,000
Duration: 1999-

Co-Principal Investigator in "A Distributed System for Modeling Shape and Action"
Agency: National Science Foundation, Experimental Partnerships
Amount: $1,200,000
Duration: 10/1/99-10/1/02

Principal Investigator in "Eye Design"
Agency: NSF
Amount: $200,000
Duration: 10/1/00-10/1/03

Principal Investigator in "Decision Making using Camera Networks"
Agency: NSF
Amount: $300,000

Duration: 10/1/03-10/1/06

Co-Principal Investigator in "VACE: Action Interpretation"
Agency: ARDA
Amount: $2,000,000
Duration: 2004-2006

PI in Project/Proposal Title: SEER: A Gigascale Neuromorphic Vision System (A collaborative project with Kwabena Boahen, Stanford)
Agency: NSF
Amount: $500,000
Duration: 9/1/05-9/1/08

PI in Project/Proposal Title: The Grammars of Human Behavior (A collaborative project with Ken Nakayama, Harvard)
Agency: NSF
Amount: $350,000
Duration: 9/1/04-9/1/07

PI in Project/Proposal Title: Integrating Perception and Reasoning (A collaborative project with V.S.Subramanian, UMIACS, Univ. of Maryland)
Agency: NSF
Amount: $350,000
Duration: 9/1/03/-9/1/06

PI in Project/Proposal Title: Behaviorscope: Sensory grammars for sensor networks (A collaborative project with Andreas Savvides, Yale)
Agency: NSF
Amount: $250,000
Duration: 9/1/07/-9/1/09

PI in Project/Proposal Title: POETICON
Agency: European Union
Amount: $1 million
Duration: 9/1/08/-9/1/11

PI in Project/Proposal Title: The HAL (Human Activity Language) Tool
Agency: NIH
Amount: $1,000,000
Duration: 9/1/07/-9/1/10

Co-PI in Project/Proposal Title: An integrated approach to visual surveillance (A collaborative project with Larry Davis and Rama Chellappa, Univ. of Maryland)
Agency: ARDA (VACE)
Duration: 9/1/04-9/1/06.

PI in Project/Proposal Title: Robots with vision that find objects.
Agency: NSF Cyber-physical Systems
Amount: $450,000
Duration: 9/1/10-9/1/13

Project/Proposal Title: POETICON++ : Robots need language
Agency: European Union
Amount: $1,200,000 million
Duration: 1/1/12-1/1/16

Qualcomm Prize-Robots with language
Agency: Qualcomm
Amount: $100,000

Duration: 2010-2011

Google Award: Stereo segmentation
Agency: Google
Amount: $20,000.
Duration: 2006-2008

Co-PI Project/Proposal Title: Shared Perception and Cognition for Autonomy (with J. Baras)
Agency: DARPA
Amount: $800,000
Duration: 1/7/2014-12/12/2015

Co-PI in project/Proposal Title: MONA LISA: Monitoring and Learning of Actions, Cyberphysical Systems (with C. Fermüller)
Agency:NSF
Amount: $800,000
Duration: 1/10/2015-1/10/2018.

Co-PI in project/Proposal Title: Interpretation and Learning of Human Actions (with C. Fermüller)
Agency: Samsung, Inc.
Amount: $150,000
Duration: 1/10/2015-1/10/2018

Co-PI in project/Proposal Title: Robot-Linked User Control Interaction Design (R-LUCID) (with J. Baras)
Agency: DARPA
Amount: $450,000
Duration: 1/1/2017-12/30/2018.

Co-PI in project/Proposal Title: Dynamic Robot Operator Interaction Design (DROID) Assessment, Guidance, and Engineering Tool (AGENT) (with J. Baras and C. Fermüller)
Agency: DARPA
Amount: $450,000
Duration: 1/1/2017-12/30/2018

Qualcomm Innovation Prize
Amount: $100,000 support to students M. Maynord and A. Guha

PI, Brin Family Foundation
$200,000 support for research in active perception.

Co-PI Project/Proposal Title: Intelligent and Learning Autonomous Systems: Composability and Correctness
Agency: ONR
Amount: $2,415,887
Duration: 2018-2023

Co-PI Project/Proposal Title: TRANSFORMING SHELLFISH FARMING WITH SMART TECHNOLOGY AND MANAGEMENT PRACTICES FOR SUSTAINABLE PRODUCTION
Agency: USDA
Amount: $10,000,000
Duration: 2020-2025