

# **George Sperling**

- Publications
- Reprintings of Publications
- Unpublished Bell Laboratories Technical Memoranda
- Talks at Conferences and Meetings of Professional Societies
- Invited Lectures at Universities and Institutes

## Publications

- 1960 Sperling, G. (1960). The information available in brief visual presentations. *Psychological Monographs: General and Applied*, 74,(11, Whole No. 498).
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- 1971 Sperling, G. (1971). Flicker in computer-generated visual displays: Selecting a CRO phosphor and other problems. *Behavior Research Methods and Instrumentation*, 3, 151-153.
- 1971 Sperling, G. (1971). Stereoscopic visual displays: Principles, viewing devices, alignment procedures. *Behavior Research Methods and Instrumentation*, 3, 154-158.
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## Reprintings of Publications

(A partial list of books in which the articles, whose journal references were given above, have been reprinted. Not up to date.)

\* Indicates the entire volume of the journal was reprinted.

### The information available in brief visual presentations (1960).

1. *Inzhenernaya Psikhologiya za Rubezhom (Engineering Psychology Abroad)*. A. N. Leontiev (Ed.). Moskva: Izdatelstvo Progress (Progress publishers), 1967. Pp. 7-68 (translated into Russian).
2. *The International Library of Critical Writings in Psychology. Memory*. Morris, P. E. and Conway, M. (eds). Cheltenham, Gloster, & London, UK: Edward Elgar, 1992.

### Short-term storage of information in vision (1961).

1. *Contemporary Theory and Research in Visual Perception*. R. N. Haber (Ed.). New York: Holt, Rinehart and Winston, Inc., 1968. Pp. 202-214.

### A model for visual memory tasks (1963).

1. Bell System Technical Monograph, 4534.
2. *Inzhenernaya Psikhologiya za Rubezhom (Engineering Psychology Abroad)*. A. N. Leontiev (Ed.). Moskva: Izdatelstvo Progress (Progress publishers), 1967. Pp. 69-94 (translated into Russian).
3. *Bobbs-Merrill Reprint Series in Psychology*, The Bobbs-Merrill Co., 4300 West 62nd Street, Indianapolis, Indiana. Reprint No. P-697.
4. *Information-Processing Approaches to Visual Perception*. R. N. Haber (Ed.). New York: Holt, Rinehart and Winston, Inc., 1968. Pp. 18-31.
5. *Introductory Psychology. Selected Readings*. Vol. I (Second Edition). David E. Carter (Ed.). New York: MSS Educational Publishing Co., Inc., 1970.
6. *Engineering Psychology. Current Perspectives in Research*. William C. Howell and Irwin L. Goldstein (Eds.). New York: Appleton-Century-Crofts (Meredith Corp.), 1971. Pp. 102-116.
7. *Readings in the Psychology of Cognition*. M. Coltheart (Ed.). Toronto, Canada: Holt, Rinehart and Winston, Inc., 1972. Pp. 27-44.

### Linear theory and the psychophysics of flicker (1964).

1. \**Flicker*. H. E. Henkes and L. H. van der Tweel (Eds.). The Hague: W. Junk, 1964. Pp. 3-15.

**Successive approximations to a model for short-term memory (1967).**

1. *Pamyat i Deyatelnost, Simposium 22 (Memory and Action, Symposium 22)*. P. I. Zinchenko (Ed.). Moskva: Izdatelstvo Nauka (Science Publishers), 1966. Pp. 26-40.
2. *\*Attention and Performance*. A. F. Sanders (Ed.). Amsterdam: North-Holland Publishing Co., 1967. Pp. 285-292. (Also available in paperback.)
3. *Memory and Attention. An Introduction to Human Information Processing*. D. A. Norman. New York: John Wiley & Sons, Inc. Pp. 63-68. (Norman quotes most of the article but omits three sections: Introduction, Short Duration Visual Images, and Summary.)
- 3a. Translated into Italian by Franco Angeli Editori, Milan, Italy, 1970.
4. *Information-Processing Approaches to Visual Perception*. R. N. Haber (Ed.). New York: Holt, Rinehart and Winston, Inc. 1968. Pp. 32-37.
5. *Readings in the Psychology of Cognition*. M. Coltheart (Ed.). Toronto, Canada: Holt, Rinehart and Winston, Inc., 1972. Pp. 45-52.
6. *Psicologia Cognivista*. Roncato and Umilta (Eds.). Bologna, Italy: Societa Editrice il Mulino, 1980.

**Computer Papers**

1. *On Line Computing for Psychology*. Advanced Study Institute, NATO, July 1969. Parasites, 106-107; Calibration, 58-62; Flicker, 63-69; Stereo, 70-79.

**Sperling/Landy/Cohen/Pavel, Intelligible encoding of ASL image sequences at extremely low information rates.**

1. In: *Human and Machine Vision II, Azriel Rosenfeld, Ed.*, Perspectives in Computing, Vol. 13. New York: Academic Press, 1986, Pp. 256-312.

## Bell Labs Technical Memoranda

- 1968 Sperling, G. *GSDumps. A General Purpose Subroutine for Storing Information on Magnetic Tapes for the DDP24 Computer.* Bell Telephone Laboratories Memorandum May 16, 1968 (12 pages).
- 1969 Budiansky, Judy, and Sperling, George. *GSLetters. A General Purpose System for Producing Visual Displays in Real Time and for Running Psychological Experiments on the DDP24 Computer.* Bell Telephone Laboratories Technical Memorandum 69-1223-6, March 18, 1969. (159 pages).
- 1969 Sperling, G. *GSReprints: A Program for Managing Mailing Lists with the DDP224 Computer.* Bell Telephone Laboratories Technical Memorandum 69-1223-4, March 25, 1969 (27 pages).
- 1972 Sperling, G., Dwivedi, A. S., and Kaplan, Miriam. *NYUSHO User Manual. NYUSHO. A General Purpose Language for Producing Visual Displays in Real Time and For Running Psychological Experiments.* Implemented at New York University, DEC PDP/15. 121 pages.
- 1977 Burt, P., and Sperling, G. *NYUSHO. A Tutorial Guide.* 26 pages.
- 1977 Sperling, G. *A Method for the Variable Attenuation of the Sound Produced by a Piano.* Bell Telephone Laboratories Memorandum, October 28, 1977.
- 1977 Sperling, G. *Methods to Minimize Intrusions by Telephone.* Bell Telephone Laboratories Memorandum, October 28, 1977.
- 1978 Burt, P. and Sperling, G. *VEXSYS. A Computer System for Vision Experiments.* Unpublished memorandum, June 26, 1978 (36 pages).
- 1978 Sperling, G. *The Goal of Theory in Experimental Psychology.* Bell Telephone Laboratories Technical Memorandum 78-1221-12, July 26, 1978 (15 pages).
- 1980 Melchner, M. J. and Sperling, G. *VEX: A Computer System for Real-Time Vision Experiments.* Bell Telephone Laboratories Technical Memorandum 80-1225-11, June 19, 1980 (25 pages).

## Talks at Conferences and Meetings of Professional Societies

† Indicates an invited address.

†† Indicates a plenary address.

\* Indicates an abstract of talk was published.

- 1960 \*Optical Society of America, Washington, D. C., April 9, 1960. *Negative Afterimage without Prior Positive Image.*
- 1960 Eastern Psychological Association, New York, New York, April 16, 1960. *Visual Information Storage.*
- 1960 \*XVI International Congress of Psychology, Bonn, West Germany, August 4, 1960. *Visual Information Storage.*
- 1960 4th London Symposium on Information Theory, London, England, August 31, 1960. *Short Term Storage of Information in Vision.*
- 1960 \*Optical Society of America, Boston, Massachusetts, October 14, 1960. *Bistable Aspects of Monocular Vision.*
- 1961 \*Optical Society of America, Pittsburgh, Pennsylvania, March 2, 1961. *Impulse Responses in Foveal Vision.*
- 1961 The Psychonomic Society, New York, New York, September 1, 1961. *Spatial and Temporal Visual Masking.*
- 1962 †Symposium on Memory (Sponsored by the Office of Naval Research), Austin, Texas, January 25, 1962. *Two Kinds of Human Memory.*
- 1962 \*Optical Society of America, Washington, D.C., March 16, 1962. *The Visual Masking of 'Flashes' of Darkness by 'Flashes' of Darkness.*
- 1962 Eastern Psychological Association, Atlantic City, New Jersey, April 27, 1962. *Auditory Interference with a Visual Memory Task.*
- 1962 †Symposium on Information Processing in Man: Research Frontiers (Sponsored jointly by the Human Factors Society and the University of Southern California), Los Angeles, California, June 23, 1962. *A Model for Visual Memory Tasks.*
- 1962 The Psychonomic Society, St. Louis, Missouri, August 31, 1962. *Temporal Visual Masking. II. Theory.*
- 1962 \*American Psychological Association, St. Louis Missouri, September 3, 1962. *Visual Masking by Impulse Flashes as a Function of Masking Stimulus Energy and Background Intensity.*
- 1963 \*†Seventeenth International Congress of Psychology, Washington, D.C., August 23, 1963. *What Visual Masking Can Tell Us About Temporal Factors in Perception.*
- 1963 \*Optical Society of America, Jacksonville, Florida, March 27, 1963. *Essential Nonlinearity of Visual Masking by Flickering Light.*
- 1963 †Symposium on the Physiology of Flicker, Amsterdam, The Netherlands, September 9, 1963. *Linear Theory and the Psychophysics of Flicker.*

- 1963 †International Society for Clinical Electroretinography (ISCERG), Rotterdam, The Netherlands, September 12, 1963. *Summary of the Session on 'The Psychophysics of Flicker' and Some Conclusion to be Derived Therefrom.*
- 1964 Eastern Psychological Association, Philadelphia, Pennsylvania, April 18, 1964. *The Effect of Sound of Stimuli upon Short-Term Memory.* (With Dr. Roseanne G. Speelman. Paper Read by Dr. Speelman.)
- 1964 \*American Psychological Association, Los Angeles, California, September 7, 1964. *Spatial Localization during Eye Movements.* (With Dr. Roseanne G. Speelman.)
- 1965 \*Optical Society of America, Philadelphia, Pennsylvania, October 7, 1965. *Visual Spatial Localization During Object Motion, Apparent Motion, and Image Motion Produced by Eye Movements.* (With Dr. Roseanne G. Speelman.)
- 1966 Symposium: Theory of Temporal Factors in Vision and Visual Perception. Center for Visual Science, University of Rochester, New York. June 6, 1966. *Eye Movement and Perceived Movement.*
- 1966 †Symposium: Theory of Temporal Factors in Vision and Visual Perception. Center for Visual Science, University of Rochester, New York, June 7, 1966. *Temporal Factors in Visual Masking.*
- 1966 †\*Eighteenth International Congress of Psychology, Moscow, USSR, August 10, 1966. *Successive Approximations to a Model for Short-Term Memory.*
- 1966 †Symposium on Attention and Performance. (Sponsored by the Institute for Perception RVO-TNO, Soesterberg, The Netherlands.) Driebergen, The Netherlands, August 18, 1966. *Vision During Eye Movements and During Object Movements.*
- 1966 \*Optical Society of America, San Francisco, California, October 21, 1966. *Comparisons of Real and Apparent Motion.*
- 1968 \*Western Psychological Association, San Diego, California, March 29, 1968. Tutorial Research Lecture: *The New Look in the Psychology of Vision.*
- 1968 Mathematical Psychology Meetings, Stanford University, Palo Alto, California, August 28, 1968. *Energy Models of Binocular Vision.*
- 1968 †Mathematical Psychology Meetings. Stanford University, Palo Alto, California, August 29, 1968. *Structural Considerations in Models of Memory.* (Incorporated into Group Discussion).
- 1968 \*American Psychological Association, San Francisco, California, September 1, 1968. *Phonemic Model of Short-Term Auditory Memory.*
- 1968 \*Optical Society of America, Pittsburgh, Pennsylvania, October 10, 1968. *Energy-Level Models of Binocular Vision.*
- 1968 †National Academy of Sciences, National Research Council, Conference on: The Influence of Early Experience on Visual Information Processing, Lake Mohonk, New York, October 28, 1968. *Short-Term Memory Storage in Visual Perception.*
- 1968 Psychonomic Society, St. Louis, Missouri, November 1, 1968. *Model of Temporal Visual Discrimination.* (With Man Mohan Sondhi, paper read by George Sperling).
- 1969 \*North Atlantic Treaty Organization, Advanced Studies Institute on: On-Line Computing for Behavioral Science, Department of Psychology, Sheffield University, England. July 16, 1969: *Computer Parasites and Hosts: Practical Advice on How to be a Successful Parasite at Your Host's Computer Installation.* July 16, 1969: *Programming Visual Displays.* July

- 19, 1969: *Comparisons between the Structure of Computers and of Human Memory*. July 19, 1969: (1) *How to Produce Binocular Displays*, (2) *How to Calibrate Computer-Produced Displays*, (3) *Flicker in Computer Displays*.
- 1969 †\*Nineteenth International Congress of Psychology London, August 6, 1969. Symposium on Visual Masking and Meta-Contrast. *After One Hundred Years of Research in Perception, What's New? New Models*.
- 1969 †Symposium on Attention and Performance-III. (Sponsored by the Institute for Perception RVO-TNO, Soesterberg, The Netherlands.) Driebergen, The Netherlands, August 11, 1969. *Structural Factors in Models of Memory*.
- 1969 †Symposium on Visual Search, British Psychological Society, London, England, December 12, 1969. *Extremely Rapid Visual Scanning*.
- 1970 †Symposium on Memory, Experimental Psychology Society (Great Britain), National Hospital, Queens Square, London, January 3, 1970. *Structural Factors in Memory*.
- 1970 Association for Research in Ophthalmology, Sarasota, Florida, May 3, 1970. *Model of the Retina. Neuroanatomical Inferences from Psychophysical Data*.
- 1970 †Center for Visual Sciences, Sixth Annual Symposium: Spatial and Temporal Interactions in Vision, Rochester, New York. June 11, 1970. *Simple Model of Spatial Visual Interactions*.
- 1970 †Workshop on Processing Models in Perception and Psychophysics, Miami Beach, Florida, August 26, 1970. (Sponsored by the National Science Foundation, the Mathematical Social Science Board, and the Center for Advanced Study in the Behavioral Sciences.) *Elementary Neural Models for Perceptual Phenomena*.
- 1971 †Australian Psychological Society, Western Australian Branch, Perth, Western Australia, July 12, 1971. *Extremely Rapid Visual Search*.
- 1971 †Symposium on Attention and Performance-IV, Boulder, Colorado, August 21, 1971. *Hierarchical Aspects of Visual Information Processing*.
- 1971 †Mathematical Psychology Meeting, Princeton, New Jersey, September 2, 1971. *Neural Models of Perceptual Phenomena*.
- 1972 †Eastern Psychological Association Boston, Massachusetts, April 27, 1972. *Visual Search without Eye-Movements*.
- 1972 †Canadian Psychological Association, Montreal, Quebec, June 22, 1972. *On-Line Generation of Visual Displays*.
- 1972 †Conference on Vision, Sponsored by The Technical Study Group for Color Deficiency, The Society of Ophthal-Optics, The Study Group for Perception, and The Physiological Optics Group, Kowa Building, Tokyo, Japan, August 12, 1972. *Neural Models for Visual Processes*.
- 1972 †\*Twentieth International Congress of Psychology, Tokyo, Japan. August 14, 1972. *Structural Factors in Short-Term Memory*.
- 1972 †\*Sperling, George. Twentieth International Congress of Psychology, Tokyo, Japan. August 14, 1972. *Visual Masking*.

- 1972 †Sperling, George. American Psychological Association, Honolulu, Hawaii, Division 3 (Experimental Psychology), New Fellows Address, September 6, 1972. *Visual Search*.
- 1973 †Sperling, George. The Margaret E. Tresselt Memorial Conference, New York University. May 11, 1973. *The Search for the Highest Rate of Search*.
- 1973 †Sperling, George. Symposium on Attention and Performance-V., Saltsjöbaden, Stockholm, Sweden, August 1973. *Limits on the Spatial Range of Attention*.
- 1973 Sperling, George. Mathematical Psychology Meeting, University of Montreal, Quebec, Canada. August 1973. *Estimating Item and Order Information*.
- 1974 †Sperling, George. Society for Research in Child Development, Study Group on Theoretical and Practical Implications of Research on the Development of Deaf Children, New Orleans, August 26-30, 1974. *Future Prospects in Language and Communication for the Congenitally Deaf*.
- 1975 †Sperling, George. National Conference on the Use of On-Line Computing in Psychology, Boulder, Colorado, November 5, 1975. *Movement Perception in Computer-Driven Visual Displays*.
- 1975 Psychonomic Society, Denver, Colorado, November 7, 1975. *Multiple Detections in a Brief Visual Stimulus: The Sharing and Switching of Attention*.
- 1976 Sperling, George. First Annual Interdisciplinary Conference, Jackson, Wyoming, January 23, 1976. *The Sharing and Switching of Visual Attention*.
- 1976 †Sperling, George. International School of Biophysics. *Integration of Sensory Information*. Erice-Trapani, Sicily, Italy. April 21, 1976: *Visual Attention*. April 22, 1976: *Visual and Auditory Sensory Storage*.
- 1976 †Workshop in the Theory and Measurement of Economic Choice Behavior, University of California, Berkeley, California, June 19, 1976. *Two Models for Economics from Psychology*.
- 1976 †With Melvin J. Melchner, talk presented by G. Sperling, Attention and Performance VII, Abbaye de Senanque, Gordes, France. August 4, 1976, *Attention Operating Characteristics for Visual Search*.
- 1976 †Ninth Annual Mathematical Psychology Meetings, New York University, New York, NY, August 31, 1976. *Attention Operating Characteristics for Visual Search*.
- 1976 †With Melvin J. Melchner. Fourth Symposium of Sensory Physiology. Leningrad, U.S.S.R., November 3, 1976. *Visual Search and Visual Attention*. (Paper read by Dr. John Krauskopf.)
- 1976 With Adam Reeves, talk presented by G. Sperling, Psychonomic Society, Saint Louis, Missouri, November 11, 1976. *Reaction Time of an Unobservable Response*.
- 1977 Sperling, George. Second Interdisciplinary Conference, Jackson Hole, Wyoming. January 12, 1977. *Measuring the Reaction Time of an Unobservable Response: A Shift of Visual Attention*.
- 1977 Sperling, George. Society of Experimental Psychologists, Yale University, New Haven, Connecticut. April 1, 1977. *Visual Search, Visual Attention, and the Attention Operating Characteristic*.

- 1977 With Adam Reeves, talk presented by A. Reeves, Eastern Psychological Association, Boston, Massachusetts, April 15, 1977. *Order Information in Short-Term Visual Memory.*
- 1977 With Adam Reeves, talk presented by G. Sperling, Tenth Annual Mathematical Psychology Meeting, University of California, Los Angeles, August 23, 1977. *Attentional Theory for Order Information in Short-Term Visual Memory.*
- 1977 †Sperling, George. American Psychological Association, San Francisco, California, August 28, 1977. *Recent Developments in the Study of Imagery: A Discussion.*
- 1978 Sperling, George. Third Annual Interdisciplinary Conference, Jackson, Wyoming, January 19, 1978. *The Representation of Order Information in Short-Term Visual Memory.*
- 1978 \*With Peter Burt, talk presented by P. Burt, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 5, 1978. *The Contribution of Spatial and Temporal Separation and of Feature Similarity to Perceived Movement.*
- 1978 \*With Adam Reeves, talk presented by G. Sperling, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 5, 1978. *Measuring the Reaction Time of a Shift of Visual Attention.*
- 1978 †With Jane Kaufman, talk presented by G. Sperling, Attention and Performance VIII, Educational Testing Service, Princeton, New Jersey, August 22, 1978. *Three Kinds of Visual Short-Term Memory.*
- 1978 \*With Peter Burt and Bela Julesz, talk presented by P. Burt, Optical Society of America, San Francisco, California, October 31, 1978. *Range of Stereopsis.*
- 1978 †Sperling, George. Brain Theory Day, Boston University, Boston, Mass., November 18, 1978. *Visual Attentive Processes: Implications for Brain Theory.*
- 1979 With Peter Burt, talk presented by G. Sperling, Fourth Annual Interdisciplinary Conference, Jackson, Wyoming. January 26, 1979. *Visual Motion Perception in Ambiguous Displays: Experiments and a General Theory.*
- 1979 With Eileen Kowler, talk presented by E. Kowler, Eastern Psychological Association, Fiftieth Annual Meeting, Philadelphia, Pennsylvania, April 19, 1979. *The Effect of Saccade-Like Changes of the Retinal Image on Visual Information Processing.*
- 1979 With Eileen Kowler, talk presented by E. Kowler, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1979. *Saccade-Like Image Perturbations Do Not Aid Visual Information Processing.*
- 1979 \*With R. Didner. Poster. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1979. *Perceptual Delay in Metaccontrast and in Apparent Motion.*
- 1979 With Peter Burt, talk presented by G. Sperling. †Society for Mathematical Psychology, Twelfth Annual Meeting, Brown University, Providence, Rhode Island, August 29, 1979. *Theory of the Time-Distance Trade-Off in Visual Apparent Motion.*
- 1979 †Sperling, George. Society for Mathematical Psychology, Twelfth Annual Meeting, Brown University, Providence, Rhode Island, August 31, 1979. *Visual Attention: Reaction-Time Distributions and Operating Characteristics.*
- 1980 With Eileen Kowler, talk presented by G. Sperling. Fifth Annual Interdisciplinary Conference, Jackson, Wyoming. January 15, 1980. *Stimulus Transients in Visual Search -- Are They Necessary?*

- 1980 Sperling, George. Fifth Annual Interdisciplinary Conference, Jackson, Wyoming. January 17, 1980. *Some Problems in the Communication of American Sign Language.*
- 1980 Sperling, George. Acoustics and Behavioral Research Center, Bell Laboratories, Murray Hill, N.J., Research Calendar Talk (M.V. Mathews, Sponsor). January 23, 1980. *Review of a Symposium to Compare C and PASCAL.*
- 1980 †American Mathematical Society, Symposium on Mathematical Psychology, Philadelphia, Pennsylvania. April 15, 1980. *Mathematical Models of Perception.*
- 1980 Sperling, George. Optical Society of America, Topical Meeting on Recent Advances in Vision, Sarasota, Florida. May 3, 1980. *Low Bandwidth Visual Communication for the Deaf.*
- 1980 †Sperling, George. American Psychological Association, Montreal, Quebec, Invited Address. September 4, 1980. *Measuring Attention.*
- 1981 Sperling, George. Sixth Annual Interdisciplinary Conference, Park City, Utah. January 22, 1981. *Catastrophe Theory of Binocular Vision.*
- 1982 Sperling, George. Seventh Annual Interdisciplinary Conference, Jackson, Wyoming. January 29, 1982. *Attendance Theory: Introduction to Signal Detection Theory and Attention Theory.*
- 1982 George Sperling and J. P. H. van Santen, talk presented by G. Sperling. USAF Review of Sponsored Basic Research in Human Information Processing, Sarasota, Florida, May 9, 1982. *Models of Motion Perception.*
- 1982 †Sperling, George. Harry Frank Guggenheim Conference on Animal Cognition, Columbia University, New York, N.Y. June 4, 1982. *Lessons for Animal Cognitive Psychologists.*
- 1982 †Sperling, George. Society for Mathematical Psychology, Fifteenth Annual Meeting, Princeton University, Princeton, New Jersey, August 8, 1982. *A Unified Theory of Attention and Signal Detection.*
- 1982 †With M. Pavel, Yoav Cohen, Michael S. Landy, and Barry J. Schwartz. Talk presented by George Sperling. Rank Prize Funds, International Symposium on Physical and Biological Processing of Images, The Royal Society of London, London, England, September 29, 1982. *Image Processing in Perception and Cognition.*
- 1983 Society of Experimental Psychologists, University of California, San Diego, California, March 25, 1983. *A Unified Theory of Attention and Signal Detection.*
- 1983 \*Farrell, Joyce E., Misha Pavel, and George Sperling. Poster presentation. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1983. *Visible Persistence of Stimuli in Apparent Motion.*
- 1983 \*Schwartz, Barry J., and George Sperling, Paper presented by B. J. Schwartz. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1983. *Nonrigid 3D Percepts From 2D Representations of Rigid Objects.*
- 1983 \*Kowler, Eileen, and George Sperling, Paper presented by E. Kowler. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1983. *Abrupt Onsets Do Not Aid Visual Search.*
- 1983 \*Van Santen, Jan P. H., and George Sperling, Paper presented by J. P. H. van Santen. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1983. *A Temporal Covariance Model of Motion Perception.*

- 1983 †Sperling, George, and Adam Reeves, Paper presented by George Sperling. New York Academy of Sciences, Conference on Timing and Time Perception, New York, New York, May 10, 1983. *Temporal Order of Brief Visual Events*.
- 1983 Van Santen, Jan P. H., and George Sperling, Paper presented by George Sperling. Society for Mathematical Psychology, Sixteenth Annual Meeting, Boulder, Colorado, August 12, 1983. *A New Class of Models of Motion-Sensitive Units in Human Vision*.
- 1983 †\*Sperling, George. Psycholinguistics Circle of New York, New York University, New York, November 9, 1983. *Image Processing Studies of American Sign Language*.
- 1983 Yoav Cohen, Michael S. Landy, Misha Pavel, and George Sperling, Paper presented by Michael S. Landy. Society for Computers in Psychology, Thirteen Annual Meeting, San Diego, California, November 16, 1983. *HIPS<sup>†</sup>: Picture Processing under UNIX -- Software and Applications*.  
<sup>†</sup>HIPS is the Human Information Processing Laboratory's Image Processing System.
- 1983 \*George Sperling and Adam Reeves, Paper presented by George Sperling, Psychonomic Society, San Diego, California, November 18, 1983. *Gating model of visual attention*.
- 1984 Sperling, George. Ninth Annual Interdisciplinary Conference, Jackson, Wyoming, January 24, 1984. *Elementary Motion-Detecting Units*.
- 1984 \*Van Santen, Jan P. H., and George Sperling, Paper presented by J. P. H. van Santen. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 30, 1984. *Applications of a Reichardt-Type Model to Two-Frame Motion*.
- 1984 \*Weichselgartner, Erich, and George Sperling, Poster, presented jointly. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 30, 1984. *Psychophysical Method for the Continuous Measurement of Visible Persistence*.
- 1984 \*Landy, Michael S, and George Sperling, Poster, presented jointly. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 30, 1984. *Image Processing in Visual Psychophysical Research*.
- 1984 \*Reeves, Adam, and George Sperling. Poster, presented jointly. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 30, 1984. *Visual Temporal Order Perception*.
- 1984 †Sperling, George. USAF Review of Sponsored Basic Research in Human Information Processing, Sarasota, Florida, May 8, 1984. *A Gating Model of Shifts of Visual Attention*.
- 1984 †Sperling, George. Second Workshop on Human and Machine Vision, International Symposium on Pattern Recognition, Montreal, Canada August 1, 1984. *The Resolution of Perceptual Ambiguity*.
- 1984 †Sperling, George. Symposium on Mathematical Theories of Motion Perception, Society for Mathematical Psychology, Seventeenth Annual Meeting, Chicago, Illinois August 22, 1983. *Theories of Motion Perception*.
- 1984 †Van Santen, Jan P. H., and George Sperling. Paper presented by J. P. H. Van Santen. Symposium on Mathematical Theories of Motion Perception, Society for Mathematical Psychology, Seventeenth Annual Meeting, Chicago, Illinois August 22, 1983. *The Elaborated Reichardt Model of Motion Perception*.
- 1984 †Sperling, George and Jan. P. H. van Santen. Paper presented by George Sperling. American Psychological Association, Toronto, Canada, Symposium on Recent Advances in Understanding Stroboscopic Motion, August 25, 1984. *The Mechanism of Human Short-Range Motion Perception*.

- 1984 †Sperling, George. Workshop on the Systems Approach in Vision Dedicated to Prof. L. H. van der Tweel, Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam, The Netherlands. August 29, 1984. *Models of Motion Perception*.
- 1984 Farrell, Joyce E., Misha Pavel, and George Sperling. Paper presented by Joyce E. Farrell. Seventh European Conference on Visual Perception, Cambridge, England, September 3, 1984. *Visible Persistence and Apparent Motion*.
- 1984 \*Barbara Anne Doshier, George Sperling, and Steven Wurst. Paper presented by Barbara Anne Doshier. Optical Society of America, San Diego, California, October 31, 1984. *Stereopsis Versus Proximity-Luminance Covariance as Determinants of Perceived Three-Dimensional Structure*.
- 1984 \*George Sperling, David H. Parish, M. Pavel, and Douglas H. Desaulniers. Paper presented by George Sperling. Psychonomic Society, San Antonio, Texas, November 11, 1984. *Auditory List Recall: Phonemic Structure, Acoustic Confusibility, and Familiarity*.
- 1984 †Sperling, George. CAVIL, Cognitive and Verbal Investigators League Adelphi University, Garden City, Long Island, New York, December 8, 1984. *A Unified Theory of Attention and Signal Detection*.
- 1985 Sperling, George. Tenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 16, 1985. *Image Processing Studies of American Sign Language*.
- 1985 \*With Erich Weichselgartner and Adam Reeves, talk presented by Erich Weichselgartner. Eastern Psychological Association, Fifty-Sixth Annual Meeting, Boston, Massachusetts, March 24, 1985. *Effects of Concurrent Tasks, Distance, and Visual Obstacles on Shifts of Visual Attention*.
- 1985 \*George Sperling and David H. Parish, Paper presented by George Sperling. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 10, 1985. *Forest-in-the-Trees Illusions*.
- 1985 †Sperling, George. Lecture Course in Computational Neuroscience Cold Spring Harbor Laboratory Cold Spring Harbor, New York.  
 June 20, 1985: *The Theory of and Experimental Evidence for Generalized Reichardt Models of Motion Perception*.  
 June 24, 1985: *The Role of Time and Distance in Apparent Motion*.  
 June 24, 1985: *Integrating Perceptual Information in Computing Structure from Motion: Physical, Neural, and Psychological Models*.
- 1985 †George Sperling and Michael S. Landy, Grossberg/Rosenfeld Workshop on Human and Machine Vision, Boston, Massachusetts, Nov 20-21. *Visual Transmission of Intelligible American Sign Language at Extremely Low Information Rates*.
- 1985 \*Michael S. Landy, Barbara A. Doshier, and George Sperling, Paper presented by Michael S. Landy. Psychonomic Society, Boston, Massachusetts, November 23, 1985. *Assessing Kinetic Depth in Multi-Dot Displays*.
- 1986 Barabara A. Doshier, George Sperling, and Stephen A. Wurst Paper presented by George Sperling. Eleventh Annual Interdisciplinary Conference, Whistler, British Columbia, Canada, February 10, 1985. *Additivity of Luminance and Stereopsis Cues in KDE*.
- 1986 Sperling, George. Eleventh Annual Interdisciplinary Conference, Whistler, British Columbia, Canada, February 11, 1985. *Gating Model of Visual Attention*.

- 1986 \*Erich Weichselgartner and George Sperling, Paper presented by Erich Weichselgartner. Eastern Psychological Association, Fifty-Seventh Annual Meeting, New York, New York, April 19, 1986. *Two Processes in Visual Attention*.
- 1986 †Sperling, George. Symposium on Computational Models in Human Vision, Center for Visual Science, University of Rochester, New York. June 20, 1986. *Reichardt Models of Motion Detection*.
- 1986 \*Erich Weichselgartner and George Sperling, Paper presented by Erich Weichselgartner. 35th Meeting of the German Society of Psychology, Heidelberg, Germany, September 28, 1986, Symposium on Attention. *Gleichzeitige Erfassung des Zeitverlaufs Zweier Visueller Aufmerksamkeitsprozesse. (Estimation of the time course of two concurrent attentional processes.)*
- 1986 \*George Sperling and Erich Weichselgartner, Paper presented by George Sperling. Psychonomic Society, New Orleans, Louisiana, November 14, 1986. *Measuring the time course of automatic and controlled attention*.
- 1987 Sperling, George. Twelfth Annual Interdisciplinary Conference, Jackson, Wyoming, January 7, 1987. *Fourier and Non-Fourier Motion Systems*.
- 1987 \*Landy, Michael S., George Sperling, Barbara Anne Doshier and Mark Perkins, Paper presented by Michael S. Landy, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 7, 1987. *From what kind of motions can structure be inferred?*
- 1987 \*Chubb, Charles, and George Sperling, Paper presented by Charles Chubb, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 7, 1987. *Drift-balanced random stimuli: A general basis for studying nonFourier motion perception*.
- 1987 \*George Sperling and Barbara Anne Doshier, Poster, presented jointly, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 8, 1987. *Predicting rigid and nonrigid perceptions*.
- 1987 \*Parish, David H. and George Sperling, Poster, presented jointly. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 8, 1987. *Object spatial frequency, not retinal spatial frequency, determines identification efficiency*.
- 1987 †Sperling, George. IEEE First Annual International Conference on Neural Networks. San Diego, California. June 20, 1987. Tutorial: *Neurobiology Review*.
- 1987 †Sperling, George. Fechner Centennial, International Conference in Honour of G. Th. Fechner, Developments in Psychophysical Theory, Psychological Institute, University of Bonn, Bonn, Germany. June 27, 1987. *NonFourier Motion Perception*.
- 1987 \*Michael S. Landy, George Sperling, Mark E. Perkins, and Barbara A. Doshier. Paper presented by Michael S. Landy. Optical Society of America A, Rochester, New York, October 22 1987. *Perception of Complex Shape from Optic Flow*.
- 1987 \*George Sperling and David H. Parish, Paper presented by George Sperling. Psychonomic Society, Seattle, Washington, November 8, 1987. *Efficiency of Human Letter Recognition*.
- 1987 †George Sperling and Charles Chubb, Paper presented by George Sperling. AFOSR Program in Visual Information Processing, Annapolis, Maryland, December 16, 1987. *Non-Fourier Motion and Texture Perception*.
- 1988 George Sperling and David H. Parish, Paper presented by George Sperling. Thirteenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 26, 1988. *The Efficiency of Object Recognition*.

- 1988 †Sperling, George. Visual Form and Motion Perception: Psychophysics, Computation, and Neural Networks. (Meeting dedicated to the memory of the late Kvetoslav Prazdny.) Boston University, Massachusetts. *Fourier and Non-Fourier Perception of Motion and Orientation*. Saturday, March 5, 1988.
- 1988 \*George Sperling and Thomas R. Riedl, Poster presented by George Sperling, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 3, 1988. *Summation and Masking Between Spatial Frequency Bands in Dynamic Natural Visual Stimuli*.
- 1988 \*Chubb, Charles, and George Sperling, Paper presented by Charles Chubb, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 5, 1988. *Processing Stages in Non-Fourier Motion Perception*.
- 1988 †Sperling, George. Conference: Toward a Video-Telephone for Deaf and Hard of Hearing People, Gallaudet Research Institute, Technology Assessment Program, Washington, D.C. May 26, 1988. *Evaluations of Low Bandwidth Video Communication Systems*.
- 1988 †Sperling, George. XXIV International Congress of Psychology, Sydney, Australia, August 29, 1988. *Processing Stages in Visual Motion and Pattern Perception*.
- 1988 †Sperling, George. International Neural Network Society Boston, MA, September 9, 1988. *Some Principles of Neural Organization Inferred from Psychophysics*.
- 1988 \*George Sperling and Karl Gegenfurtner, Paper presented by George Sperling. Psychonomic Society, Chicago, Illinois, November 10, 1988. *Two Transfer Processes in Iconic Memory*.
- 1989 Sperling, George. Fourteenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 16, 1989 *Two Motion and Texture Perception Systems*.
- 1989 \*Charles Chubb and George Sperling, Paper presented by Charles Chubb, Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1989. *Texture Interactions Determine Apparent Lightness*.
- 1989 \*George Sperling and Charles Chubb. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1989. *Apparent Motion Derived from Spatial Texture*.
- 1989 \*Charles Chubb and George Sperling. Paper presented jointly, IEEE Workshop on Motion, Newport Beach, California, March 21, 1989. *Second-Order Motion Perception: Space/Time Separable Mechanisms*.
- 1989 \*David H. Parish, George Sperling and Michael S. Landy, Paper presented by David H. Parish. Topical Meeting on Applied Vision, Optical Society of America, San Francisco, California July 12, 1989. *Temporal Compression of American Sign Language Using Event Boundaries*.
- 1989 †Invited Address: 1988 Distinguished Scientific Contribution Award, American Psychological Association, New Orleans, Louisiana, August 16, 1989. *Computational Models of Attention*.
- 1989 ††Sperling, George. Plenary lecture, NIPS, The IEEE Conference on Neural Information Processing Systems - Natural and Synthetic, Denver, Colorado, November 29, 1989. *Visual Preprocessing*.
- 1990 Sperling, George. Fifteen Annual Interdisciplinary Conference, Jackson, Wyoming, January 9, 1990. *Vision During Saccadic Eye Movements*.

- 1990 ††Sperling, George. Plenary lecture, International Joint Conference on Neural Networks, Washington, D.C., *Parallel Systems of Visual Processing*.
- 1990 †Sperling, George. National Research Council, Committee on Vision, Workshop on Visual Search, Newport Beach, California. *Visual Preprocessing*.
- 1990 Sperling, George. ††German Congress of Experimental Psychologists Regensburg, Germany, Plenary address, April 11, 1990. *Computational Theories of Attention*.
- 1990 \*Anne Sutter, George Sperling, and Charles Chubb. Poster. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 30, 1990. *Measuring the Spatial Frequency Selectivity of Second-Order Texture Mechanisms*.
- 1990 \*Joshua A. Solomon Charles Chubb, and George Sperling. Talk presented by Joshua A. Solomon. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1990. *The Lateral Inhibition of Perceived Textural Contrast is Orientation Specific*.
- 1990 Sperling, George. 86th Meeting of the Society of Experimental Psychologists, Columbia University, New York, NY, May 19, 1990. *Perceptual Preprocessing*.
- 1990 †\*Sperling, George. Symposium on Attention and Performance 15, Ann Arbor Michigan, July 10, 1990. *Within a Location, Selective Attention Does Not Produce Early Perceptual Filtering*.
- 1990 †Sperling, George. Siggraph Conference, Pace University, New York, NY, October 14, 1990 *Perceptual Basis of Three-Dimensional Vision*
- 1990 \*George Sperling and Erich Weichselgartner, Paper presented by George Sperling. Psychonomic Society, New Orleans, Louisiana, November 16, 1990. *Episodic Theory of Visual Attention*.
- 1990 Wurst, Stephen A., George Sperling, and Barbara Anne Doshier. Evidence for a central locus of short-term visual repetition memory. Poster, presented jointly Psychonomic Society, New Orleans, Louisiana, November 16, 1990.
- 1991 †George Sperling, Helmholtz Club, University of California, Irvine, February 5, 1991. *Dynamics of Visual Attention: Review and a Theory*.
- 1991 George Sperling, 87th Meeting of the Society of Experimental Psychologists, University of California at Los Angeles, March 16, 1991. *A Theory of Spatial Attention*.
- 1991 \*Solomon, Joshua A, and George Sperling. Talk presented by Joshua A. Solomon. Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 29, 1991. *Can we see 2nd-order motion and texture in the periphery?*
- 1991 \*Werkhoven, Peter, Charles Chubb, and George Sperling. Poster, presented jointly Association for Research in Vision and Ophthalmology, Sarasota, Florida, April 29, 1991. *Texture-defined motion is ruled by an activity metric--not by similarity*.
- 1991 \*Sutter, Anne, George Sperling and Charles Chubb, Poster, presented jointly Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 1, 1990. *Further measurements of the spatial frequency selectivity of second-order texture mechanisms*.
- 1991 Sperling, George. Sixteenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 24, 1991. *Attentional Filtering in Visual Short-Term Memory*.
- 1991 †George Sperling, Neural Networks for Vision and Image Processing. An International Conference Sponsored by Boston University's Wang Institute, Center for Adaptive Systems, Tyngsboro, MA 01879, May 11, 1991. *Two Systems of Visual Processing*.

- 1991 †George Sperling, Neural and Visual Computation Symposium Center for Neural Sciences New York University, NY, May 31, 1991. *The Spatial, Temporal, and Featural Mechanisms of Visual Attention.*
- 1991 †George Sperling, National Academy of Sciences, National Research Council, Committee on Vision, Conference of Visual Factors in Electronic Image Communications, Woods Hole, MA, July 23, 1991. *Empirical Observations on Image Compression and Comprehension.*
- 1991 †George Sperling, The International Society for Psychophysics, Washington Duke Inn, Duke University, Durham, North Carolina, New York University, NY October 19, 1991. *The Featural Mechanism of Visual Attention.*
- 1991 †\*Chubb, C., Solomon, J. A. and Sperling, G. Invited paper presented by Charles Chubb. Optical Society of America, San Jose, California November 7, 1991, *Contrast Contrast Determines Perceived Contrast.*
- 1991 \*George Sperling and Stephen Wurst, Paper presented by George Sperling. Psychonomic Society, San Francisco, California November 22, 1991. *Selective Attention to an Item is Stored as a Feature of the Item.*
- 1992 Sperling, George. Seventeenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 12, 1992. *Is Attentional Selection by Feature of Location?*
- 1992 \*Shui-I Shih and George Sperling. Eastern Psychological Association, Boston, Massachusetts, April 4, 1992. *Cluster Analysis as a Tool to Discover Covert Strategy.*
- 1992 \*Werkhoven, P., Sperling, G., and Chubb, C. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 6, 1992. *The Dimensionality of Motion From Texture.*
- 1992 XXV International Congress of Psychology Bussels, Belgium, July, 23, 1992. *Computational Models of Early Vision.*
- 1992 \*Werkhoven, W., Sperling, G., and Chubb, C. Optical Society of America, Albuquerque, New Mexico, September 25, 1992. *Energy Computations in Motion and Texture.*
- 1992 \*George Sperling and Hai-Jung Wu, Paper presented by George Sperling. Psychonomic Society, Saint Louis, Missouri, November 15, 1992. *Defining and Teaching Objectively Accurate Confidence Judgments.*
- 1993 Sperling, George. Eighteenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 18, 1993. *2nd-Order Motion Perception.*
- 1993 †\*Sperling, George and Doshier, Barbara A. Talk presented by George Sperling. Linking Psychophysics, Neurophysiology and Computational Vision. A Conference to Celebrate Bela Julesz' 65th Birthday. Rutgers University, New Brunswick, New Jersey, May 1, 1993. *Structure-from-motion: Algorithms, Illusions, Mechanisms.*
- 1993 \*Solomon, J. A. and Sperling, G. Talk presented by Joshua A. Solomon. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 4, 1993. *Fullwave and Halfwave Rectification in Motion Perception.*
- 1993 \*Shih, Shui-I and Sperling, G. Talk presented by Shui-I Shih. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 6, 1993. *Visual Search, Visual Attention, and Feature-Based Stimulus Selection.*
- 1993 \*Lu, Zhong-Lin and Sperling, G. (1993) Talk presented by Zhong-Lin Lu. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 6, 1993. *2nd-Order Illusions: Mach bands, Craik--O'Brien--Cornsweet.*

- 1993 \*Chubb, C., Darcy, J. and Sperling, G. Talk presented by Charles Chubb. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 6, 1993. *Metameric Matches in the Space of Textures Comprised of Small Squares with Jointly Independent Intensities.*
- 1993 †Sperling, George. Geometric Representation of Perceptual Phenomena. A Conference in Honor of Tarow Indow. University of California, Irvine. July 28, 1993. *The Representation of Motion and Texture.*
- 1993 †Sperling, George. Society for Mathematical Psychology, Twenty-Sixth Annual Meeting, Norman, Oklahoma. Plenary lecture. August 17, 1993. *Second-Order Perception.*
- 1993 †\*Sperling, George. Ciba Foundation Symposium No: 184. Higher-Order Processing in the Visual System. The Ciba Foundation, 41 Portland Place, London, UK. October 21, 1993. *Full-Wave and Half-Wave Mechanisms in Motion and Texture Perception.*
- 1993 †Sperling, George. International Workshop on Digital Video for Intelligent Systems. Hosted by Department of Electrical and Computer Engineering, University of California, Irvine, California. December 17, 1993. *An Engineering Model of Human Visual Processing / Intelligibility of Extremely Reduced Images.*
- 1994 Sperling, George. Nineteenth Annual Interdisciplinary Conference, Jackson, Wyoming, January 20, 1994. *A Theory of Spatial Attention.*
- 1994 †Sperling, George. Western Psychological Association, Kona, Hawaii, Invited Lecture, April, 22, 1994, *Second-Order Perception.*
- 1994 \*Sperling, G., and Lu, Z-L. Talk presented by G. Sperling. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1994. *Immunity to Pedestals Distinguishes Motion-Energy from Feature-Tracking Motion-Perception Mechanisms.*
- 1994 †\*Sperling, George. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 2, 1994. *Second-Order Perception.*
- 1994 \*Lu, Z-L., and Sperling, G. Talk presented by Z-L Lu. Association for Research in Vision and Ophthalmology, Sarasota, Florida, May 6, 1994. *Deriving the Dimensions of Texture Perception from Metameric Texture Matches.*
- 1994 †\*Sperling, G, Lu, Z-L, Chubb, C, and Solomon, J. A. Talk presented by Z-L Lu. Joint meeting: World Congress of Computational Intelligence/IEEE Neural Networks/Fuzzy Logic/Evolutional Computation. Orlando, Florida. Plenary lecture: *Visual Preprocessing: First- and Second-Order Processes in the Perception of Motion and Texture.*
- 1994 †Sperling, George. Centennial Conference in Honour of Hermann v. Helmholtz, "From Codes to Cognition. Foundational Aspects of Visual Information Processing." Christian-Albrechts-Universitaet zu Kiel, Kiel, Germany. July 21, 1994. *Computational Principles of Visual Perceptual Processing.*
- 1994 †Sperling, George. American Psychological Association, Symposium on Spatial Attention, Los Angeles, California. August 12, 1994. *A Computational Theory of Visual Spatial Attention.*
- 1994 \*George Sperling and Shui-i Shih. Paper presented by George Sperling. Psychonomic Society, Saint Louis, Missouri, November 13, 1994. *Mechanisms of Feature-Based Attentional Selection in Visual Search.*

- 1995 Sperling, George. Twentieth Annual Interdisciplinary Conference, Jackson, Wyoming, January 23, 1995. *Historical Review: First- and Second-Order Visual Processing*. January 25, 1995. *Experiments with American Sign Language*.
- 1995 \*Lu, Z-L., and Sperling, G. Talk presented by Z-L Lu. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 16, 1995. *Drastically different saturation for luminance motion versus texture-contrast motion*.
- 1995 \*Sperling, G. and Lu, Z-L. Talk presented by G. Sperling. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 18, 1995. *Attention affects the perceived direction of visual motion*.
- 1995 \*Sperling, G. and Shih, S. Talk presented by S. Shih. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 18, 1995. *A model of selective attention in early visual processing*.
- 1995 Sperling, G. and Weichselgartner, E. Talk presented by G. Sperling. Cognitive Science Association for Interdisciplinary Learning (CSAIL). Hood River, Oregon, July 13-14, 1995. *Quantal versus Continuous Dynamics of Spatial Attention: An Episodic Theory*.
- 1995 †Symposium to Honor R. Duncan Luce, University of California, Irvine, California. August 2, 1995. *Quantal versus Continuous Dynamics of Spatial Attention*
- 1995 Lu, Z-L. and Sperling, G. Paper presented by Z-L Lu. Society for Mathematical Psychology, Twenty-Eighth Annual Meeting, University of California, Irvine, California. *Modelling the Three Systems of Human Visual Motion Perception*.
- 1995 Sperling, G. Lu, and Lu, Z-L. Paper presented by G. Sperling. Society for Mathematical Psychology, Twenty-Eighth Annual Meeting, University of California, Irvine, California. *Deriving the properties of contrast gain control in visual motion perception*
- 1995 †Sperling, G. European Mathematical Psychology Meeting, Regensburg, Germany, Luce Symposium, September 5, 1995. *Deriving the tripartite functional architecture of visual motion perception*.
- 1995 \*Sperling, G. and Lu, Z-L. Paper presented by G. Sperling. Psychonomic Society, Los Angeles, California. November 12, 1995. *Visual Attention Operates Via a Saliency Map*.
- 1996 Lu, Z-L and Sperling, G. Paper presented by Zhong-Lin Lu. Twenty-First Annual Interdisciplinary Conference, Jackson, Wyoming, January 30, 1996. *Gain-Control in Motion Processing*.
- 1996 Sperling, G., and Lu, Z-L. Paper presented by G. Sperling. Twenty-First Annual Interdisciplinary Conference, Jackson, Wyoming, January 31, 1996. *Saliency Model of Spatial Attention*.
- 1996 George Sperling, 92th Meeting of the Society of Experimental Psychologists, Brown University, March 23, 1996. *Theory of Spatial Attention*.
- 1996 \*Chubb, C., Lu, Z-L., and Sperling, G. Poster presented jointly. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 23, 1996. *Algorithm for extracting structure in natural images yields simple cell-like receptive fields*.
- 1996 \*Lu, Z-L., and Sperling, G. Poster presented jointly. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 24, 1996. *The Lincoln Picture nonproblem*.

- 1996 \*Richman, S., Lu, Z-L., and Sperling, G. Poster presented jointly. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 24, 1996. *Flicker motion*.
- 1996 \*Sperling, G., and Lu, Z-L. Paper presented by G. Sperling. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 25, 1996. *Second-order reversed-phi reveals two mechanisms: Second-order motion energy and third-order feature salience*.
- 1996 †\*Society for Information Display, International Symposium, Convention Center, San Diego, California, May 16, 1996. First-principles of second-order perception.
- 1996 †Air Force Office of Scientific Research, Workshop, Wright-Patterson Air Force Base, Dayton, OH, June 5, 1996. *Computational Models of Perceptual Processes*.
- 1996 †Western Attention Meeting, Hosted by Claremont Colleges, Pomona, College, Claremont, CA, June 9, 1996. *Computational Theory of Visual Attention*.
- 1996 Shih, S. and Sperling, G. Paper read by G. Sperling. XXVI International Congress of Psychology, Montreal, Canada, August 18, 1996. *The Time Course of Covert Attention Shifts*.
- 1996 †\*Sperling, G. (1996). XXVI International Congress of Psychology, Montreal, Canada, August 19, 1996. *The Mechanism of Visual Attention is the Spatio-Temporal Salience Map*.
- 1996 †\*Sperling, G. and Lu, Z-L. (1996). Paper read by G. Sperling. XXVI International Congress of Psychology, Montreal, Canada, August 20, 1996. *The Functional Architecture of Visual Motion Perception*.
- 1996 ††Plenary evening lecture. Workshop on: Short-term Storage and Processing in Human Cognition: Dynamic Characteristics and Neural mechanisms. Leipzig, Germany. November 22, 1996. *Mechanisms of Visual Short-Term Memory and Attention*.
- 1997 Sperling, G. Twenty-Second Annual Interdisciplinary Conference, Jackson, Wyoming, February 4, 1997. *Real and Simulated Saccades; Real and Stroboscopic Motion*.
- 1997 ††Tagung experimentell arbeitender Psychologen, 39 (TeaP, 39th Conference of Experimental Psychologists), Humboldt University, Unter den Linden, Berlin, Germany. March 24-27, 1997. Plenary lecture (March 26). *Atoms of the Mind: An Historic Overview of Theories of Attention*.
- 1997 \*Sperling, G., and Lu, Z-L. Paper presented by G. Sperling. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 12, 1997. *Proving the Independence of First- and Second-Order Motion Systems*
- 1997 \*Lu, Z-L and Sperling, G. Paper presented by Zhong-Lin Lu. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 12, 1997. *Selective Adaptation of Three Motion Systems*.
- 1997 \*Blaser, E. and Sperling, G. Paper presented by E. Blaser. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 12, 1997. *Measuring the Spatial Resolution of Visual Attention*.
- 1997 \*Chubb, C., Lu, Z-L, and Sperling, G. Paper presented by C.Chubb. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 12, 1997. *Statistically Certified Unsupervised Learning*.
- 1997 \*Sperling, G., and Lu, Z-L. Paper presented by G. Sperling. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 12, 1997. *Proving the Independence of First- and Second-Order Motion Systems*

- 1997 †Workshop on Vision, Recognition, Action: Neural Models of Mind and Machine, Boston University, May 30, 1997. *An Integrated Theory for Attentional Processes in Vision, Recognition, and Memory.*
- 1997 \*Sperling, G., and Shih, S. (1997). Paper presented by G. Sperling. Psychonomic Society, Philadelphia, PA., November 21, 1997. *Measuring and Modeling Selective Attention in Early Visual Processing.*
- 1998 Sperling, G. Twenty-Third Annual Interdisciplinary Conference, Jackson, Wyoming, February 2, 1998. *Update on the Three Systems Theory of Motion Perception.*
- 1998 94th Annual Meeting of the Society of Experimental Psychologists Laguna Beach, California, March 28, 1998. *Second-Order Perception.*
- 1998 \*Sperling, G., and Lu, Z.-L. (1998). Paper presented by G. Sperling. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, March 12, 1998. *Update on the Three-Motion-Systems Theory.*
- 1998 \*Richman, S., and Sperling, G. Poster presented by S. Richman. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, March 13, 1998. *Perception of line-segment textures.*
- 1998 \*Blaser, E., and Sperling, G. Paper presented by E. Blaser. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 14, 1998. *Measuring Attention to Color Using an Equivalent Chromaticity Paradigm.*
- 1998 †\*European Conference on Visual Perception Oxford University, Oxford, England, August 25, 1998 *First- Second- and Third-Order Motion Systems.*
- 1998 †\*Sperling, G. and Shih, S. (1998). Paper presented by G. Sperling. 29th European Mathematical Psychology Group Meeting Keele University, Keele, Staffordshire, England, September 1, 1998. *A Mathematical Theory of Iconic Memory and Attention.*
- 1998 \*Sperling, G & Blaser, E. Paper presented by G. Sperling. Psychonomic Society, Dallas Texas, November 20, 1998. *Measuring and Modeling Selective Attention in Early Visual Processing.*
- 1999 †Catalina Workshop on Visual Attention and Neural Circuits. Sponsored by California Institute of Technology and The Office of Naval Research, Two Harbors, Catalina Island, January 8, 1999. *Computational Models of Attention.*
- 1999 Sperling, G. Twenty-Fourth Annual Interdisciplinary Conference, Jackson, Wyoming, February 1, 1999. *Tutorial Overview of Higher-Order Motion Systems.*  
February 3, 1999. *Measuring the Amplification of Attention.*
- 1999 \*Lesmes, L., Lu, Z-L., and Sperling, G. Paper presented by L. Lesmes, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 10, 1999. *The Mechanism of Isoluminant Motion Perception is Third-Order Motion.*
- 1999 \*Lu, Z-L., and Sperling, G. Paper presented by G. Sperling, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 10, 1999. *The Amplification Principle in Motion Perception.*
- 1999 \*Sperling, G., and Lu, Z-L. Paper presented by G. Sperling, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 10, 1999. *Unequal Representation of Black and White in Human Vision.*

- 1999 \*Chubb, C., Lu, Z-L., and Sperling, G. Poster presented by C. Chubb, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 11, 1999. *Measuring the Nonlinearity Used to Sense High Temporal Frequency Second-Order Motion.*
- 1999 \*Ho, C. E., and Sperling, G. Poster presented by G. Sperling, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 11, 1999. *Selecting Second and Third-Order Motion Pathways.*
- 1999 †International Conference on Vision and Attention, Centre for Vision Research, York University, June 22 -26, 1999. *Computational Models of Attention.*
- 1999 \*Z-L. Lu, L. Lesmes, and G. Sperling. Paper presented by Z-L. Lu., The XXII European Conference on Visual Perception (ECVP), Trieste, Italy, August 24, 1999. *Isoluminant Chromatic Motion Perception: Defining the Mechanism.*
- 1999 \*Sperling, G., Blaser, E., and Lu, Z-L. Paper presented G. Sperling, The XXII European Conference on Visual Perception (ECVP), Trieste, Italy, August 26, 1999. *The Percceptual Amplification of Attention to Color.*
- 1999 †\*Sperling, G., Lesmes, L., Lu, Z-L, paper presented by G. Sperling. 31st European Mathematical Psychology Group Meeting, University of Mannheim, Germany, Symposium in Honor of Jan Droesler. August 30, 1999. *A theory of isoluminant chromatic motion perception.*
- 1999 †Symposium to Honor Samuel J. Williamson, New York University, Department of Physics and Center for Neuroscience. September 24, 1999. *Neuromagentism and Short-Term Memory: Auditory and Visual*
- 1999 \*Sperling, G. Psychonomic Society, Los Angeles, CA, November 19, 1999. *Computational Models of Attention Switching.*
- 1999 \*Sperling, G, and Ho, C. E. Psychonomic Society, Los Angeles, CA, November 19, 1999. *Attention and other determinants of perceived direction in ambiguous stimuli.*
- 2000 Sperling, G. Twenty-Fifth Annual Interdisciplinary Conference, Jackson, Wyoming, January 26, 2000 *The Mechanisms of Visual Attention.*
- 2000 \*Tseng, Chia-huei, Gobell, Joetta L., and Sperling, George. (2000). Poster. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 30, 2000. *Sensitization to color: Induced by search, measured by motion.*
- 2000 \*Tse, Chi-Hang, Lu, Zhong-Lin, and Sperling, George. (2000). Poster. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 30, 2000. Attending to red and green concurrently in different areas reduces attentional capacity.
- 2000 \*Sperling, George, Kim, Tae-Seong, and Lu, Zhong-Lin. (2000). Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 2, 2000. *Direction-reversal VEPs reveal signatures of first- and second-order motion.*
- 2000 \*Lesmes, Luis A., Lu, Zhong-Lin, and Sperling, George. (2000). Poster. Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 4, 2000. *Motion standstill in rapidly moving chromatic displays.*
- 2000 \*Gobell, Joetta L., Tseng, Chia-huei, and Sperling, George. (2000). Paper presented by J. L. Gobell, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 5, 2000. *Effect of scene orientation of depth perception: Trapeaoids, windsurfers, runways.*

- 2000 \*Sperling, G., and Ho, C. E. (2000). The XXIII European Conference on Visual Perception (ECVP), Groningen, The Netherlands August 30, 2000. *Third-order versus first-order and second-order motion in ambiguous stimuli: Competition reveals temporal tuning functions, monocular/binocularity, and the role of attention.*
- 2000 \*Lu, Z-L, Lesmes, L. A., and Sperling, G. (2000). The XXIII European Conference on Visual Perception (ECVP), Groningen, The Netherlands August 30, 2000. *Motion standstill perceived from rapidly moving red-green gratings.*
- 2000 †\*Sperling, G. Optical Society of America, Providence, Rhode Island, †\*Symposium: First-, Second-, Third-Order Mechanisms of Pattern and Motion Perception, October 22. *The current status of the three-systems theory of visual motion perception.*
- 2000 †Sperling, G. Optical Society of America, Providence, Rhode Island, Workshop on Chromatic Motion Mechanisms, October 23. *The Mechanism of Isoluminant Red-Green Motion Perception*
- 2000 ††\*Sperling, G. International Congress of Neural Information Processing, Taejeun, Korea. Plenary lecture, November 16, 2000. *Neural Computations in Early Vision*
- 2001 Sperling, G. Twenty-Sixth Annual Interdisciplinary Conference, Jackson, Wyoming, January 25, 2001 *Measuring iconic memory with EEG.*
- 2001 Appelbaum, L. Gregory, Lu, Zhong-Lin, and Sperling, George. (2001). Paper presented by C.-H. Tseng, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 1, 2001. *Contrast amplification in a texture discrimination task.*
- 2001 \*Tseng, Chia-huei, Kim, Hyungjun, Gobell, Joetta L., Lu, Zhong-Lin, and Sperling, George. (2001). Paper presented by C.-H. Tseng, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 2, 2001. *Motion standstill in rapidly moving stereoptic depth displays.*
- 2001 \*Sperling, G., Kim, H, and Lu, Z-L. (2001). Paper presented by H. Kim, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 2, 2001. *Is there interocular first-order motion?*
- 2001 \*Kim, H, Lu, Z-L., and Sperling, G. (2001). Paper presented by H. Kim, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 3, 2001. *Rivalry motion versus depth motion.*
- 2001 \*Gobell, Joetta L., Tseng, Chia-huei, and Sperling, George. (2001). Paper presented by J. L. Gobell, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 4, 2001. *Characterizing the constraints on the spatial distribution of visual attention.*
- 2001 \*Lesmes, Luis A., Lu, Zhong-Lin, Doshier, Barbara, Sperling, George, and Posner, C. (2001). Paper presented by L. A. Lesmes, Association for Research in Vision and Ophthalmology, Fort Lauderdale, Florida, May 4, 2001. *Intra- and cross-modal activation of attention gates.*
- 2001 †Sperling, G. 8th Joint Symposium on Neural Computation, The Salk Institute, La Jolla, California, May 19, 2001. *What motion standstill tells us about pattern perception.*
- 2001 ††\*Sperling, G. International Conference on Cognitive Science, Beijing, China, Plenary lecture, August 27, 2001. *Computational Models of Visual Selective Attention to Space and to Features.*

- 2001 \*Chia-huei Tseng and George Sperling. Paper presented by C. Tseng. International Conference on Cognitive Science, Beijing, China August 27, 2001. *Sensitization to color: Induced by instructions, measured by motion*
- 2001 †\*Sperling, G. Optical Society of America, UCI Satellite Meeting, University of California, Irvine, Workshop on Visual Attention, October 13, 2001, *Measuring the trajectory of visual attention.*
- 2001 \*Appelbaum, L. G., Z-L. Lu and G. Sperling. Optical Society of America, UCI Satellite Meeting, University of California, Irvine, Poster, October 14, 2001, *Facilitation of Sub-threshold Contrasts by Means of Texture-Slant.*
- 2001 \*Gobell, J., C.H. Tseng, and G. Sperling. Optical Society of America, UCI Satellite Meeting, University of California, Irvine, Poster, October 14, 2001, *Measuring the spatial resolution of visual attention.*
- 2001 \*Kim, Hyungjun, Zhong-Lin Lu, and George Sperling. Optical Society of America, UCI Satellite Meeting, University of California, Irvine, Poster, October 14, 2001, *Rivalry motion: A cue to cyclopean motion perception.*
- 2001 \*Tseng, Chia-huei, Hyungjun Kim, Joetta L. Gobell, Zhong-Lin Lu, and George Sperling, Optical Society of America, UCI Satellite Meeting, University of California, Irvine, Poster, October 14, 2001, *Revisiting Stereoptic Motion Standstill: Stereoptic Motion Processing Has Lower Temporal Resolution than Shape Processing.*
- 2002 Sperling, G. Twenty-Seventh Annual Interdisciplinary Conference, Jackson, Wyoming, February 5, 2002 *Third-order Motion and Motion Standstill*
- 2002 ††\*Tagung experimentelle arbeitenden Psychologie 44 (TeaP, 44th Conference of Experimental Psychologists), Technische Universitaet, Chemnitz, Chemnitz, Germany, Plenary lecture, March 26, 2002, *The Three Systems Theory of Motion Perception.*
- 2002 Sperling, G. 98th Annual Meeting of the Society of Experimental Psychologists University of California, Berkeley April 6, 2002 *Third-Order Motion.*
- 2002 \*Sperling, George, Son-Hee Lyu, and Hyunngjun Kim. Vision Sciences Society, Sarasota, Florida, May 11, 2002, *Motion Standstill in First- and Second-order Motion.*
- 2002 \*Ding, Jian, and George Sperling. Poster, Vision Sciences Society, Sarasota, Florida, May 12, 2002, *A Gain-Control Theory of Binocular Combination.*
- 2002 \*Gobell, Joetta, Chia-huei Tseng, and George Sperling. Vision Sciences Society, Sarasota, Florida, May 15, 2002, *Two Variations of a Novel Search Task to Investigate the Nature and Limits of the Distribution of Visual Attention.*
- 2002 †Sperling, George, and Jian Ding. Ninth Joint Symposium on Neural Computation, California Institute of Technology, Pasadena, California, May 18, 2002, *A Neural Network Theory of Binocular Combination.*
- 2002 Ding, Jian, and George Sperling. Poster, Ninth Joint Symposium on Neural Computation, California Institute of Technology, Pasadena, California, May 18, 2002, *A Neural Network Theory of Binocular Combination.*
- 2002 Tseng, Chia-huei, and George Sperling. Poster, Ninth Joint Symposium on Neural Computation, California Institute of Technology, Pasadena, California, May 18, 2002, *Long-Lasting Sensitization to Color Induced by a Search Task.*

- 2002 \*Lu, Zhong-Lin, Lesmes, Louis A., and George Sperling. European Conference on Visual Perception. Glasgow, Scotland, August 26, *Equiluminance, Sensitive Calibration, Three-Systems Theory, and Isoluminant Chromatic Motion Perception.*
- 2002 \*Sperling, George, Sonhee Lyu, and Hyungjun Kim. European Conference on Visual Perception, Glasgow, Scotland, August 28, *Apparent standstill of rapidly moving first- and second-order motion stimuli*
- 2002 \*Tseng, Chia-huei, Hyungjun Kim, Joetta L. Gobell, Zhong-Lin Lu, and George Sperling. European Conference on Visual Perception. Glasgow, Scotland, August 25-29, *The Failure of Motion Systems: Motion Standstill in Stereoscopic Depth Displays.*
- 2002 ††\*Optical Society of America, Satellite Meeting, San Francisco, California. October 26, Tillyer Award Lecture, *The Intertwined Mechanisms of Motion Perception and Attention.*
- 2003 Sperling, G. Twenty-Eighth Annual Interdisciplinary Conference, Jackson, Wyoming, February 6, 2003 *Deriving the Properties of Motion Systems from a Motion-Competition Paradigm*
- 2003 \*Gobell, Joetta, Chia-huei Tseng, and George Sperling. (Poster presented by Joetta Gobell.) Vision Sciences Society, Sarasota, Florida, May 11, 2003, *Investigating the spatial modulation transfer function of attention.*
- 2003 \*Chia-huei Tseng, Gobell, Joetta, and George Sperling. (Poster presented by Chia-huei Tseng.) Vision Sciences Society, Sarasota, Florida, May 13, 2003, *Attentional sensitization to specific colors.*
- 2003 \*Lesmes, Luis, Lu, Zhong-Lin, Doshier, Barbara, and Sperling, George. (Paper presented by Luis Lesmes.) Vision Sciences Society, Sarasota, Florida, May 14, 2003, *Comparing the temporal dynamics of intra- and cross-modal attention switching.*
- 2003 †Sperling, G. 10th Joint Symposium on Neural Computation, UC Irvine, Beckman Center, Irvine, California, May 17, 2003. *Computational networks for visual selective attention.*
- 2003 †Sperling, G. San Miniato Workshop on Attention, June 12-16, 2003, San Miniato, Italy, June 12, 2003. *Mechanisms of spatial, temporal, and featural attention*
- 2003 Gobell J., Srinivasan R., and Sperling G. Poster. Organization for Human Brain Mapping, New York Marriott Marquis Hotel, June 18-22, 2003. *Using 'frequency-tagged' EEG to measure the spatial resolution of attention.*
- 2003 International Workshop on Visual Attention, San Miniato, Italy, June 12, 2003. Computational Networks for Visual Selective Attention.
- 2003 Sperling, G., and Ding, J. European Conference on Visual Perception, Paris, France, September 2, 2003. *A Neurally-Based Computational Theory of Binocular Combination.*
- 2003 Gobell, J., Tseng, C., and Sperling, G. European Conference on Visual Perception, Paris, France, September 5, 2003. *Toward a general model of the spatial distribution of visual attention.*
- 2003 Sperling, G., Wurst, S., and Lu, Z-L. (2003). Paper read by G. Sperling, Psychonomic Society, Vancouver, BC, Canada, November 6-9, 2003. *Quantifying the Efficiency of Visual Attentional Selection.*
- 2004 Sperling, G. Twenty-Ninth Annual Interdisciplinary Conference, Jackson, Wyoming, February 3, 2004 *Long-Term Persistence of Spatial Attention.*

- 2004 \*Sperling, G. and Hsu, A. Paper presented by G. Sperling. Vision Sciences Society, Sarasota, Florida, May 1, 2004, *Revisiting the Lincoln Picture Problem*.
- 2004 Chubb, C., Landy, M., Nam, J.-H., Bindman, D. R., Sperling, G. (2004). Poster presented by C. Chubb. Vision Sciences Society, Sarasota, Florida, May 4, 2004, *The three dimensions for encoding contrast in simple textures*.
- 2004 †Sperling, G. 11th Joint Symposium on Neural Computation, University of Southern California, Los Angeles, California, May 15, 2004. *A linear systems approach to modeling the spatial distribution of visual attention*.
- 2004 George Sperling, Joetta Gobell, Chia-huei Tseng. Paper presented by George Sperling. Annual Summer Interdisciplinary Conference, Calavese, Italy. June 30, 2004. *Quantifying spatial attention*.
- 2004 \*Sperling, G., Wurst, S. A., and Lu, Z.-L. Paper presented by G. Sperling. European Conference on Visual Perception, Budapest, Hungary, August 23, 2004. *Measuring the efficiency of attentional filtering*.
- 2004 †\*Sperling, G., Gobell, J., and Tseng, C.-H. Paper presented by G. Sperling. European Conference on Visual Perception, Budapest, Hungary, August 24, 2004. *Random-dot stereograms, dipoles, motion standstill*.
- 2004 \*Tseng, C.-H., and Sperling, G. Poster presented by C.-H. Tseng. European Conference on Visual Perception, Budapest, Hungary, August 26, 2004. *Movement of isoluminant red-green gratings and of random-dot stereo depth gratings is perceived by the same salience motion-perception mechanism*.

## Invited Lectures at Universities and Institutes

- 1958 Bell Telephone Laboratories, Visual and Acoustics Research Department, August 28, 1958. *Experiments in Vision.*
- 1959 Harvard University, Psychology Colloquium, April 29, 1959. *Visual Information Storage.*
- 1962 Albert Einstein University, College of Medicine. Interdisciplinary Program, Special Lecture, May 8, 1962. *Organization in the Psychology of Vision.*
- 1963 Vassar College, Department of Psychology Colloquium, December 11, 1963. *Short-Term Memory.*
- 1963 Institute for Perception, Soesterberg, The Netherlands, September 13, 1963. *Temporal and Spatial Visual Masking.*
- 1964 Duke University, Department of Psychology Colloquium, April 29, 1964. *Short-Term Memory.*
- 1964 University of Pennsylvania, Department of Psychology Colloquium, April 15, 1964. *Short-Term Memory.*
- 1965 Stanford University, Department of Psychology Colloquium, January 27, 1965. *Processing Visual Information.*
- 1965 Northeastern University, Department of Psychology Colloquium, March 5, 1965. *Processing Visual Information.*
- 1965 Massachusetts Institute of Technology, Psychology Colloquium, May 21, 1965. *Processing Visual Information.*
- 1965 Bell Telephone Laboratories, Murray Hill, NJ, Psychology Seminar, November 8, 1965. *Spatial Localization During Eye Movements and During Object Movements.*
- 1966 Max Planck Institute (Abteilung Reichardt), Tübingen, Germany, January 4, 1966. *Visual Localization During Eye Movements and During Object Movements.*
- 1966 Columbia University, Psychology Colloquium, April 26, 1966. *Models for Short-Term Memory.*
- 1966 City College of New York, Psychology Colloquium, May 10, 1966. *Experiments and a Theory for Short-Term Memory.*
- 1966 Bell Telephone Laboratories, Murray Hill, New Jersey, Psychology Seminar, October 13, 1966. *A Retinal Model for Flicker- and Intensity-Discrimination. (With Man Mohan Sondhi).*
- 1967 University of Michigan, Mental Health Research Center, Interdisciplinary Colloquium, January 24, 1967. *Models of Short-Term Memory.*
- 1967 University of Michigan, Psychology Colloquium, January 25, 1967. *Movements of the Eye and the Psychology of Movement.*
- 1967 California Institute of Technology, Bio-engineering Department, Colloquium Series, November 22, 1967. *Short-Term Memory Processes in Vision.*
- 1968 University of California, Los Angeles, Regular Psychology Colloquium, January 11, 1968. *Short-Term Memory.*

- 1968 University of California, San Diego, Graduate Psychology Colloquium, February 8, 1968. *Short-Term Auditory Memory.*
- 1968 University of California, Los Angeles, Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences, March 1, 1968. *A Model of Vision Based on Psychophysical Experiments and its Relations to Retinal Microstructure.*
- 1968 University of Oregon, Psychology Colloquium, March 8, 1968. *Short-Term Auditory Memory.*
- 1968 University of Rochester, Center for Visual Science, Colloquium, April 17, 1968. *A Model of the Retina Based on Psychophysical Experiments and Its Relations to Retinal Microanatomy.*
- 1968 McMaster University, Department of Psychology Colloquium. April 26, 1968. *Short-Term Auditory Memory.*
- 1968 University of Pennsylvania, Philadelphia, Department of Psychology Colloquium, October 16, 1968. *Deducing Neural Microstructure from Psychophysical Experiments.*
- 1968 Bell Telephone Laboratories, Holmdel N.J. Center 322 Seminar. October 25, 1968. *Model of the Retina.*
- 1968 New York University, Washington Square College, Graduate Psychology Colloquium, November 22, 1968. *Predicting Neural Microstructure from Psychophysical Experiments.*
- 1968 University of California, Santa Barbara, Department of Psychology, Colloquium, December 16, 1968. *Auditory Short-Term Memory.*
- 1969 Rockefeller University, New York, Colloquium, May 2, 1969 *Short-Term Memory. Auditory?*
- 1969 University of Sussex, Falmer-Brighton, Sussex, England, Laboratory of Experimental Psychology Colloquium, October 16, 1969. *Predicting Neural Microanatomy from Psychophysical Experiments.*
- 1969 The National Hospital for Nervous Diseases, Queen Square, London, W.C.1. Brain and Behavior Seminar, October 24, 1969. *Short- and Long-Term Memory in Visual Information Processing.*
- 1969 University College (University of London), Department of Psychology Colloquium, October 27, 1969. *Predicting Neural Microanatomy from Behavioral Observations: An Illustration from Visual Psychophysics.*
- 1969 University of Reading, Reading, England. Department of Psychology Colloquium, October 31, 1969. *Deducing neural microstructure from psychophysical experiments.*
- 1970 Birkbeck College (University of London), Department of Psychology Colloquium, January 27, 1970. *The Structure of Short-Term Memory.*
- 1970 Goldsmiths College (University of London), New Cross, London, Department of Psychology Colloquium, January 27, 1970. *Short-term memory.*
- 1970 University of Edinburgh, Edinburgh, Scotland, Department of Psychology Colloquium, January 29, 1970. *The Structure of Short-Term Memory.*
- 1970 University of Strathclyd, Glasgow, Scotland, Department of Psychology Colloquium, January 30, 1970. *The Structure of Short-Term Memory.*

- 1970 Oxford University, England, Institute of Experimental Psychology Colloquium, February 3, 1970. *The Structure of Short-Term Memory.*
- 1970 University of Cambridge, England, Cambridge Psychological Society Colloquium, February 5, 1970. *The Structure of Short-Term Memory.*
- 1970 University of Cambridge, England, Department of Physiology, Lecture, February 6, 1970. *Visual Contrast Detection.*
- 1970 The City University (Cranwood Street) London, E.C.1, Joint Colloquium, Department of Optics and Laboratory of Psychology, March 11, 1970. *Deducing Retinal Microstructure from Psychophysical Observations.*
- 1971 Stanford University, Department of Psychology Colloquium, January 20, 1971. *Deducing Retinal Microstructure from Psychophysical Observations.*
- 1971 Rockefeller University, New York, Informal Psychology Colloquium, March 11, 1971. *Extremely Rapid Visual Search.*
- 1971 Columbia University, New York, Psychology Colloquium, May 7, 1971. *Extremely Rapid Visual Search.*
- 1971 C. W. Post College, Long Island University, Greenvale, New York, Psychology Colloquium, May 10, 1971. *Visual Search.*
- 1971 University of Western Australia, Perth, Western Australia, Department of Psychology Colloquium, July 13, 1971. *Extremely Rapid Visual Search.*
- 1971 Monash University, Clayton (Melbourne), Victoria, Australia, Department of Psychology, Special Seminars: July 15, 1971. *Extremely Rapid Visual Search.* July 16, 1971. *Neural Models for Perceptual Phenomena.*
- 1971 New School for Social Research, New York, N.Y., Graduate Department of Psychology, Research Colloquium, November 18, 1971. *Processing Visual Information, in Particular, Extremely Rapid Visual Scanning.*
- 1971 Rutgers University, Newark, New Jersey, Institute for Cognitive Studies, Research Colloquium, December 6, 1971. *Processing Visual Information: Extremely Rapid Visual Search.*
- 1972 New York University, Washington Square College, Experimental Psychology Program Seminar, February 4, 1972. *Processing Visual Information. Extremely Rapid Visual Search.*
- 1972 University of Massachusetts, Amherst, Massachusetts, Department of Psychology Colloquium, October 16, 1972. *Extremely Rapid Visual Search.*
- 1972 University of Michigan, Ann Arbor, Michigan, Mental Health Research Institute Colloquium: November 16, 1972. *Extremely Rapid Visual Search.* November 17, 1972. *Deducing Neural Microstructure from Psychophysical Data.*
- 1973 State University of New York, Buffalo. Special Cognitive Psychology Seminars: *Visual Search.* March 28, 1973. *Auditory Memory.* March 29, 1973. *Binocular Vision.* March 30, 1973.
- 1973 Dartmouth College, Hanover, New Hampshire, Psychology Colloquium, February 16, 1973. *Extremely Rapid Visual Search.*
- 1974 McGill University, Montreal, Quebec, Canada, Department of Psychology Colloquium, March 7, 1974. *Processing Visual Information: Extremely Rapid Visual Search.*

- 1974 University of Pennsylvania, Department of Psychology Colloquium. April 30, 1974. *Processing Visual Information: Extremely Rapid Visual Search.*
- 1974 New School for Social Research, New York, New York. Graduate Department of Psychology, Research Seminar, May 1974. *A Physical and a Neural Model of Binocular Vision.*
- 1974 New York University, Washington Square College, Experimental Psychology Program Seminar, November 8, 1974. *Feature-Processing Model of Visual Search.*
- 1975 Georgia Institute of Technology, Atlanta, Georgia, Department of Psychology Colloquium, April 25, 1975. *Extremely Rapid Visual Search.*
- 1975 University of Oregon, Eugene, Oregon, Department of Psychology, June 4, 1975. Informal Seminar: *Models for Multiple-Stable State Phenomena.*  
Colloquium Lecture: *Extremely Rapid Visual Search.*
- 1975 University of Washington, Seattle, Washington, Department of Psychology Colloquium, June 5, 1975. *Extremely Rapid Visual Search.*
- 1976 Temple University, Philadelphia, Pennsylvania, Department of Psychology Colloquium, April 2, 1976. *The Attention Operating Characteristic: Examples from Visual Search.*
- 1976 University of Trondheim, Trondheim, Norway. Department of Psychology Colloquium, August 27, 1976. *Visual Search and Visual Attention.*
- 1976 New York University, New York, N.Y. Experimental Psychology Program Seminar, September 24, 1976. *The Attention Operating Characteristic.*
- 1977 University of Minnesota, Department of Psychology Colloquium, January 6, 1977. *Measuring the Reaction Time of an Unobservable Response - A Shift of Visual Attention.*
- 1977 Northeastern University, Department of Psychology Colloquium, March 8, 1977. *Measuring the Reaction Time of an Unobservable Responses: A Shift of Visual Attention.*
- 1977 Loyola University of Chicago, Department of Psychology Colloquium, April 22, 1977. *Visual Search, Visual Attention, and the Attention Operating Characteristic.*
- 1977 University of California, Berkeley, College of Optometry Colloquium, August 16, 1977. *Visual Search, Visual Attention, and the Attention Operation Characteristic.*
- 1977 Smith-Kettlewell Eye Research Foundation (San Francisco), Institute for Visual Research, Seminar, August 18, 1977. *Model of Binocular Vision.*
- 1977 University of California, San Diego, Department of Psychology Colloquium, September 7, 1977. *Visual Search, Visual Attention, and the Attention Operating Characteristic.*
- 1977 Bell Laboratories, Murray Hill, New Jersey. Two Talks:  
October 11, 1977. *Measuring the Reaction Time of an Unobservable Response: A Shift of Visual Attention.*  
October 12, 1977. *Visual Search, Visual Attention, and the Attention Operating Characteristic.*
- 1977 Columbia University, Department of Psychology, Colloquium, October 14, 1977. *Measuring the Reaction Time of an Unobservable Response: A Shift of Visual Attention.*
- 1977 Bell Laboratories, Piscataway Laboratory, Piscataway, New Jersey. Special Projects Group Meeting (Department 9131), December 1, 1977. *The Time Required to Switch Visual Attention: The Timing of Unobservable Events.*

- 1977 University of Toronto and School of Graduate Studies, Toronto, Ontario Canada. Ebbinghaus Luncheon, December 8, 1977. *Measuring the Reaction Time of an Unobservable Response: A Shift of Visual Attention.*  
Department of Psychology Colloquium, December 8, 1977 *Visual Search, Visual Attention, and the Attention Operating Characteristic.*
- 1977 Dalhousie University, Halifax, Nova Scotia, Canada. Department of Psychology Colloquium, December 9, 1977. *Measuring the Reaction Time of an Unobservable Response: A Shift of Visual Attention.*
- 1978 Department of Psychology, University of Oregon, Eugene Oregon, August 10, 1978. *Visual Search, Visual Attention, and the Attention Operating Characteristic.*
- 1978 Courant Institute of Mathematical Sciences, New York University, New York, Mathematical Biology Seminar Series, October 17, 1978. *Three Problems in Mathematical Psychology: Visual Attention, Visual Motion Perception, and Depth Perception.*
- 1978 Stanford University, Department of Psychology Colloquium, December 6, 1978, *Measuring the Reaction-Time Distributions of Unobservable Response Shifts of Visual Attention.*
- 1979 Rockefeller University, New York, N.Y.  
Estes' laboratory Colloquium, February 15, 1979. *A General Theory of Visual Motion Perception.*  
University Colloquium, February 15, 1979. *Measuring the Reaction-Time Distributions of Unobservable Responses: Shifts of Visual Attention.*
- 1979 Yale University, New Haven, Connecticut. Department of Psychology Colloquium, April 25, 1979. *Measuring the Reaction-Time of a Shift of Visual Attention.*
- 1979 Bell Laboratories, Murray Hill, New Jersey, October 22, 1979. *Motion Perception in Computer-Generated Visual Displays.*
- 1979 Bell laboratories, Murray Hill, New Jersey, October 24, 1979. *Bandwidth Requirements for Video Transmission of American Sign Language (ASL) and Finger Spelling.*
- 1980 Bell Laboratories, Holmdel, N.J., Visual Communications Research Department, Research Seminar Series, January 28, 1980. *Low Bandwidth Visual Communication for the Deaf.*
- 1981 Rutgers University, Busch Campus, New Brunswick, N.J., Department of Psychology Colloquium, May 6, 1981. *Time, Distance, and Feature Trade-offs in Visual Apparent Motion.*
- 1981 University of California at San Diego, La Jolla, CA., Salk Institute, August 27, 1981. *American Sign Language: Progress in Defining Video Transmission Requirements, Suggestions for Developing a Written Notational System.*
- 1981 University of Maryland, College Park, MD., Department of Psychology Colloquium, November 4, 1981. *Measuring Attention.*
- 1981 Princeton University, Princeton, N.J., Department of Psychology Colloquium, November 20, 1981. *A Theory of Visual Motion Perception.*
- 1982 Williams Air Force Base, Arizona, The Air Force Human Resources Laboratory, June 16, 1982. *Overview of Research on Human Information Processing at New York University.*
- 1982 Zangwill Club Lecture, Department of Psychology, University of Cambridge, Cambridge, England, September 30, 1982. *A Unified Theory of Attention and Signal Detection.*

- 1982 Columbia University, New York, N.Y., Department of Psychology Colloquium, October 15, 1982. *Image Processing and the Logic of Perception.*
- 1982 Northeastern University, Boston, Massachusetts, Department of Psychology Colloquium, October 21, 1982. *Image Processing of American Sign Language.*
- 1982 Bell Laboratories, Murray Hill, NJ, November 8, 1982. *A Unified Theory of Attention and Signal Detection.*
- 1982 Bell Laboratories, Murray Hill, NJ, November 19, 1982. *Image Processing and the Logic of Perception.*
- 1983 University of Minnesota, Minneapolis, Minnesota, Department of Psychology Colloquium, March 14, 1983. *A Unified Theory of Attention and Signal Detection.*
- 1983 Massachusetts Institute of Technology Cambridge, Massachusetts, Department of Psychology Colloquium, October 14, 1983. *Unified Theory of Attention and Signal Detection.*
- 1983 Carnegie-Mellon University Pittsburgh, Pennsylvania, Computer Science Department, Robotics Institute, Robotics Research Seminar, October 17, 1983. *Image Processing and the Logic of Perception.*
- 1983 Indiana University Bloomington, Indiana, Department of Psychology Colloquium, October 19, 1983. *Unified Theory of Attention and Signal Detection.*
- 1983 University of Illinois, Champaign-Urbana, Illinois, Department of Psychology Colloquia.  
October 20, 1983: *Unified Theory of Attention and Signal Detection.*  
October 21, 1983: *Image Processing and the Logic of Perception.*
- 1983 University of Rochester, Rochester, New York.  
Center for Visual Sciences Colloquium, November 4, 1983: *Image Processing and the Logic of Perception.*  
Department of Psychology Colloquium, November 4, 1983: *Unified Theory of Attention and Signal Detection.*
- 1983 IBM Thomas J. Watson Research Center, Yorktown Heights, New York, Research Calendar Talk, November 29, 1983. *Image Processing and the Logic of Perception.*
- 1983 RCA Sarnoff Research Laboratories, Princeton, New Jersey Research Seminar Talk, December 16, 1983. *Image Processing and the Logic of Perception.*
- 1984 Stanford University, Stanford, California, Seminar on Issues in Perception, Language, and Cognition, January 16, 1984. *The Logic of Perception.*
- 1984 Stanford University, Stanford, California, Department of Computer Science, Robotics Seminar, February 6, 1984. *How Humans Detect Visual Motion.*
- 1984 Stanford Research Institute (SRI International), Redwood City, California, Joint Colloquium, Artificial Intelligence and Vision Groups, February 8, 1984. *Mechanisms of Human Motion Perception.*
- 1984 Stanford University, Stanford, California, Department of Psychology, Friday Seminar, February 17, 1984. *Attentional Theory of Information in Short-Term Visual Memory*
- 1984 Smith Kettlewell Research Institute San Francisco, California, Brown Bag Luncheon Seminar, February 28, 1984. *Mechanism of Human Short-Range Motion Perception.*

- 1984 Stanford University, Stanford, California, Department of Psychology Colloquium, February 29, 1984. *A Unified Theory of Attention and Signal Detection.*
- 1984 University of California, Santa Cruz, Santa Cruz, California, Departmental Colloquium, Program in Experimental Psychology, March 9 1984. *A Unified Theory of Attention and Signal Detection.*
- 1984 University of California, Berkeley Berkeley, California, Departmental Colloquium, March 16, 1984. *A Unified Theory of Attention and Signal Detection.*
- 1984 NASA Ames Research Center Moffett Field, California, Perception and Cognition Seminar March 22, 1984. *The Mechanism of Human Short-Range Motion Perception.*
- 1984 Stanford University, Stanford, California, Seminar in Applied Cognitive Psychology, April 4, 1984. *Image Processing Studies of American Sign Language*
- 1984 University of California, Los Angeles, California, Department of Psychology Colloquium, April 5, 1984. *A Unified Theory of Attention and Signal Detection.*
- 1984 University of California at San Diego, La Jolla, California, Vision Lab Lunch Talk, April 19, 1984. *The Mechanism of Human Short-Range Motion Perception.*
- 1984 University of California at San Diego, La Jolla, California, Department of Psychology Colloquium, April 19, 1984. *Image Processing and the Logic of Perception.*
- 1984 School of Optometry, University of California, Berkeley Berkeley, California, Oxyopia Colloquium, April 23, 1984. *Mechanisms of Short-Range Motion Perception.*
- 1984 Department of Psychology Colloquium, University of Pennsylvania, Philadelphia, Penn., October 11, 1984. *A Unified Theory of Attention and Signal Detection.*
- 1984 Department of Psychology Colloquium, Cornell University, Ithaca, New York, October 19, 1984. *The Mechanism of Human Short-Range Motion Perception.*
- 1984 Department of Psychology Colloquium, Johns Hopkins University, Baltimore, Maryland October 24, 1984 *The Logic of Perception.*
- 1984 Colloquium, Center for Adaptive Systems, Department of Mathematics, Boston University, Boston, Massachusetts, November 28, 1984. *The Dynamics of Visual Attention.*
- 1985 Cognitive Neuroscience Colloquium, Department of Neurology, Division of Cognitive Sciences, New York Hospital-Cornell Medical Center, New York, New York, March 13, 1985. *Analysis of Movement.*
- 1985 Cognitive Neuroscience Colloquium, Department of Neurology, Division of Cognitive Sciences, New York Hospital-Cornell Medical Center, New York, New York, April 10, 1985. *A Unified Theory of Attention and Signal Detection.*
- 1985 Colloquium, Department of Psychology, Rutgers University, New Brunswick, New Jersey, October 10, 1985. *The Dynamics of Visual Attention.*
- 1985 Psychology Department Colloquium, Harvard University, Cambridge, Massachusetts, October 25, 1985. *The Dynamics of Visual Attention.*
- 1986 Psychology Department Colloquium, Columbia University, New York, New York, November 5, 1986. *The Dynamics of Visual Attention.*
- 1988 Natural Information Processing Seminar, Aiken Computation Laboratory, Harvard University, Cambridge, Massachusetts, February 22, 1988. *Information Processing Stages in Motion and Pattern Perception.*

- 1988 With Karl Gegenfurtner: Cognitive Psychology Area Seminar New York University, New York, NY, November 3, 1988. *Information Transfer in Iconic Memory*.
- 1989 Psychology Lecture Series, Georgetown University, Washington, DC, January 26, 1989. *Measuring Mental Microprocesses: An Historical Account*.
- 1989 Science Colloquium, Air Force Office of Scientific Research, Bolling Air Force Base, Washington, DC. January 27, 1989. *Discovering the Mechanisms of Human Visual Image Motion Processing*.
- 1989 Donald Taylor Memorial Lecture, Psychology Department, Yale University, New Haven, Connecticut, March 1, 1989. *Mechanisms of Human Visual Motion Perception*.
- 1989 New York University, Graduate School of Arts & Science, First Annual Dean's Day and Homecoming, First Lecture. May 6, 1989. *Experimental Science with Humans and Other Quasi-Intelligent Entities*.
- 1989 Department of Speech and Hearing Science, Co-Sponsored by Department of Psychology, Ohio State University, Columbus, Ohio, May 22, 1989. *Information Processing of Visual Language -- ASL*.
- 1989 Human Factors Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. May 23, 1989. *Theories of Attention*.
- 1989 New York University, Cognitive Science Colloquium Series, December 14, 1989. *Comparison of Perception in the Moving and Stationary Eye*.
- 1990 Special Colloquium, Department of Psychology, University of Washington, Seattle, Washington, March 2, 1990. *Stages of Visual Processing*.
- 1990 Second Attneave Lecture, University of Oregon, Eugene, Oregon, March 5, 1990. *Stages of Visual Processing*.
- 1990 Special Colloquium, Istituto di Neurofisiologia del C.N.R., Pisa, Italy, April 17, 1990. *Linear and nonlinear visual processing*.
- 1990 Distinguished Speaker Seminars in Visual Science, 1990-1991, Sponsored by the Human Performance in Space Laboratory of the Insitute for Space and Terrestrial Science and the York Vision Group, York University, Toronto, ONT, Canada, September 14, 1990. *Stages of Visual Processing*.
- 1990 Dartmouth College, Hanover, New Hampshire, Psychology Department, Vision Seminar. October 5, 1990. *Stages of Visual Processing*
- 1990 Dartmouth College, Hanover, New Hampshire, Psychology Department, Wolfgang Kohler Memorial Lecture, October 5, 1990. *Computational Theories of Attention*.
- 1990 Rutgers University, Newark College of Arts and Sciences Psychology Department Colloquium, October 15, 1990. *Computational Theories of Attention*.
- 1990 Indiana University, Bloomington Indiana, Cognitivie Sciences Colloquium, November 1, 1990. *Episodic Theory of the Dynamics of Spatial Attention*.
- 1990 New York University, Cognitive Sciences Colloquium, November 9, 1990. *Episodic Theory of the Dynamics of Spatial Attention*.
- 1991 Department of Psychology Colloquium, University of California, Irvine, Irvine, CA, January 10, 1991. *Visual Preprocessing*.

- 1991 Department of Psychology University of California at San Diego, La Jolla, CA, February 28, 1991. *Mechanisms of Attention*.
- 1991 University of California, Berkeley Berkeley, California, Joint Cognitive Science Colloquium and Oxyopia Colloquium (Optometry School), March 22, 1991. *Visual Preprocessing*.
- 1991 University of California, Berkeley Berkeley, California, Department of Psychology/Cognitive Science Colloquium, March 22, 1991. *The Spatial, Temporal, and Featural Mechanisms of Visual Attention*.
- 1991 Bonny Center for the Neurobiology of Learning and Memory, University of California, Irvine, Irvine, CA, April 8, 1991. *Mechanisms of Visual Attention*.
- 1991 Salk Institute, University of California at San Diego, La Jolla, CA, April 10, 1991. *Visual Preprocessing*.
- 1991 Department of Psychology, University of Florida at Gainesville, April 26, 1991. *Systems and Stages of Visual Processing*.
- 1991 Shanghai Institute of Technical Physics, Shanghai, China, June 17, 1991. *How the Human Visual System Computes Visual Motion* [Host: Prof. Kuang, Ding Bo (Director, SITP); Translators: Dr. Zhang, Ming and Chen, Lulin.]
- 1991 Department of Computer Science, Shanghai Information-Technology Engineers Examination Center, Fudan University, Shanghai, China, June 18, 1991. *Neural Principles of Preprocessing for Human Pattern Recognition*. [Host: Prof. Wu, Lide (Director, SITEEC).]
- 1991 Department of Electronic Science and Technology, Institute of Applied Electronics, East China Normal University, Shanghai, China, June 20, 1991. *Measuring Attention and How the Human Visual System Computes Visual Motion* [Host: Prof. Weng, Moying (Chairman and Director); Translator: Dr. Zhang, Ming.]
- 1991 Department of Psychology, Beijing University, and Institute of Psychology, Chinese Academy of Sciences, Beijing, China, June 25, 1991. [Host: Prof. Jing, Qicheng (Director, Institute of Psychology)]  
 Morning: *The Efficiency of Perception* [Translators: Dr. Zhang, Ken and Prof. Jing, Qicheng.]  
 Afternoon: *Measuring Attention*. [Translator: Luo, Chun-Rong.]
- 1991 Computational Vision Laboratory, Institute of Biophysics, Chinese Academy of Sciences, Beijing, China, June 28, 1991. *First- and Second-Order Motion Perception*. [Host: Prof. Wang Shuo-Rong (Director, Institute of Biophysics); Translator: Prof. Wang, Yun-Jiu (Laboratory Director).]
- 1991 New York University, Cognitive Sciences Colloquium, September 12, 1991. *Is There Attentional Filtering of Items by Feature as Well as by Location?*
- 1992 Center for Adaptive Systems Boston University, February 25, 1992. *Is There Attentional Selection of Items by Feature as Well as by Location?*
- 1992 University of Delaware, Department of Psychology Colloquium, March 4, 1992. *Can Visual Attentional Filter Items by Feature?*
- 1993 University of California, Irvine, Department of Cognitive Sciences, Vision Lunch Series, January 13, 1993. *2nd-Order Motion Perception*.

- 1993 University of California, Irvine, Bren Fellows Program, Learned Societies Luncheon, UCI University Club, March 9, 1993. *Modeling Mental Microprocesses*.
- 1993 University of California, Santa Barbara, First Annual Gottsdanker Memorial Lecture (Department of Psychology). May 27, 1993. *A Theory of Spatial Attention*.
- 1993 Kenneth Craik Club, University of Cambridge, Cambridge, England, October 25, 1993. *Early Visual Processing*.
- 1993 University of California, Berkeley. December 3, 1993. *A Theory of Spatial Attention*.
- 1994 Ohio State University, Columbus, College of Optometry. May 9, 1994:  
Low-Vision Seminar. *Optimal Images and Optimal Perception*.  
Distinguished Speakers Series. *Second-Order Perception*.
- 1994 University of Goettingen, Drittes Physikalisches Institut, University Lecture. July 22, 1994. *Computational Principles of Visual Perceptual Processing*.
- 1994 Max Planck Institute, Tuebingen, Germany. July 25, 1994. *Visual Preprocessing*.
- 1994 University of Pennsylvania, The Institute for Research in Cognitive Science, October 7, 1994. *Computational Principles of Visual Perceptual Processing*.
- 1995 California Institute of Technology, Computational and Neural Systems Group, Beckman Center, January 9, 1995. *Computational Principles of Visual Preprocessing*.
- 1996 Marschack Interdisciplinary Colloquium on Mathematics in the Behavioral Sciences, sponsored by the Anderson School and the Department of Economics, with support from the Anderson School Dean, the School of Public Policy and Social Research Dean, the Blum Kovler Foundation, and the Sidney Stern Memorial Trust. University of California at Los Angeles, Los Angeles, CA, March 1, 1996. *The Economics of Attention, and Other Tales*.
- 1996 Dedication Ceremony for the new Cognitive and Neural Systems Building, Boston University, Boston, Massachusetts, April 19, 1996. *Atoms of the Mind*.
- 1996 Sensation and Perception Lunch Group, University of California, Irvine, January 10, 1996.  
George Sperling and Zhong-Lin Lu: *Attentional Motion*.  
Erik Blaser and George Sperling: *Semantic Motion*.
- 1996 Sensation and Perception Lunch Group, University of California, Irvine, May 29, 1996. *Atoms of the Mind* (and) *The Goal of Theory in Experimental Psychology*.
- 1996 Sydney Area Vision Group, University of New South Wales, Sydney, Australia, July 19, 1996. *Computational Principles of Early Visual Processing*
- 1996 Department of Psychology, University of Western Sydney, Macarthur, Campbelltown NSW 2560 Australia, July 29, 1996.  
Special joint colloquium: Computer Sciences and Psychology. *Computational Principles of Early Visual Processing*.  
Psychology Colloquium. *Atoms of the Mind: An Historical Overview of Theories of Attention*.
- 1996 Psychology Colloquium, University of New South Wales, Sydney, Australia, July 31, 1996. *Atoms of the Mind: An Historical Overview of Theories of Attention*.
- 1996 Psychology Colloquium, University of Western Australia, Nedlands Australia.  
August 1, 1996. *Atoms of the Mind: An Historical Overview of Theories of Attention*.  
August 2, 1996. Vision Discussion Group: *Visual Preprocessing: Modeling the Initial*

*Stages of Human Visual Perception.*

- 1996 Biology Colloquium, Australian National University, Research School of Biological Sciences, Center for Visual Sciences, Canberra, Australia, August 6, 1996. *Computational Principles of Early Visual Processing: From Adaptation to Attention.*
- 1996 California Institute of Technology, Sloan Center for Theoretical Neurobiology and the Computation and Neural Systems program, Sloan Center Seminar October 7, 1996. *A Functional Architecture for Visual Motion Perception and Spatial Attention.*
- 1996 University of California, Irvine, Department of Psychobiology, Departmental Colloquium, October 10, 1996. *Deriving a Functional Architecture for Visual Motion Perception and Spatial Attention.*
- 1997 Max Planck Institute, Munich, Germany. April 2, 1997. *Computational Review of Early Visual Processing.*
- 1997 Max Planck Institute, Tuebingen, Germany. April 3, 1997. *How to Experimentally Isolate Three Systems of Visual Motion Perception.*
- 1997 University of Houston, Houston, Texas, December 6, 1997.  
College of Optometry, Seminar. *The Orders of Visual Motion--Techniques for Creating Pure Stimuli.*  
Institute of Cognitive Sciences Distinguished Speakers Series. *Deriving a Function Architecture for Visual Motion Perception.*
- 1998 University of Wales (Bangor), Bangor, Gwynedd, Wales, UK, Institute of Cognitive Sciences, September 3, 1998. *Repetition Detection: A Paradigm for Measuring Attentional Filtering.*
- 1999 University of Freiburg, Freiburg, Germany, Departments of Neurology and Psychology, Joint Colloquium, September 1, 1999. *Three systems of Visual Motion Perception: Historical Review, Current Status.*
- 1999 University of California, Irvine, CA. 1999-2000 Distinguished Faculty Lectureship Award for Research, Lecture, University Club, November 15, 1999. *Modeling Human Motion Perception.*
- 2000 University of California, Berkeley, California, Department of Psychology Colloquium, March 3, 2000. *The three systems theory of motion perception: Review and Update.*
- 2000 University of Trier, Germany, Psychology Department Colloquium, September 7, 2000. *Measuring and modeling the dynamics of visual spatial attention.*
- 2000 University of California, Irvine, CA. Department of Cognitive Sciences Colloquium October 9, 2000. *Measuring and modeling the dynamics of visual spatial attention.*
- 2000 Rutgers, The State University, Busch Campus, Piscataway, New Jersey, Center for Cognitive Science Colloquia Series, October 24, 2000. *Measuring and modeling visual attention*
- 2000 The Catholic University of Korea, Puchon, Seoul, S. Korea, Department of Psychology, Special Interdepartmental Colloquium, November 20, 2000. *How the human brain computes motion.*
- 2001 Center for General Education, National Yang Ming University, Teipei, Republic of China.  
September 3 2001. *Computational models of visual attention to space and to features*  
September 4 2001. *The three systems theory of human visual motion perception: Review and Update*

- 2001 Human and Information Science Laboratory, NTT Communication Science Laboratories, NTT Corporation, Atsugi-shi, Kanayama, Japan. September 6, 2001. *The three systems theory of human visual motion perception: Review and Update*
- 2001 Department of Psychology, University of Tokyo, Bunkyo-ku, Tokyo, Japan. September 7, 2001. *The three systems theory of human visual motion perception: Review and Update*
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- 2003 University of California, Irvine Institute of Brain Aging and Dementia, Alzheimer's Center Seminar Series, Colloquium, April 21, 2003. *A partial inventory of psychophysical paradigms that have been used to infer neural mechanisms of motion perception and attention.*
- 2003 Pavlov Institute of Physiology, Saint Petersburg, Russia, Colloquium, June 26, 2003. *Mechanisms of Visual Motion Perception.*
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