

## Daniel Gopher

### Curriculum Vitae and List of Publications

**I.D. No:** 03554300

**Date and place of birth:** 1943, Israel

**Marital status:** Married, four children.

#### Academic Training:

1961-1965: B.A. in Psychology and Sociology, The Hebrew University of Jerusalem.

1966-1968: M.Sc. in Psychology, The Hebrew University of Jerusalem.

1969-1972: Ph.D. in Experimental Psychology, The Hebrew University of Jerusalem.

1973-1975: University of Illinois at Urbana-Champaign.

Supplementary education: Flight training - Institute of Aviation.

Man machine models - Department of Industrial and Mechanical Engineering.

Multivariate analysis - Department of Psychology.

#### Academic Appointments:

2011 (October) Professor Emeritus, Technion

1998: Yigal Alon Chair for the Study of Human at Work. Technion.

1989: Professor, Faculty of Industrial Engineering and Management,  
Technion -Israel Institute of Technology.

1981-1988: Associate Professor, Technion - Israel Institute of Technology.

1981: Tenured, Technion - Israel Institute of Technology, Haifa.

1979-1981: Senior Lecturer, Technion - Israel Institute of Technology.

1977-1978: Senior Research and Teaching Associate, Technion - Israel Institute of  
Technology.

1975-1977: Research and Teaching Associate, Technion - Israel Institute of  
Technology. Research Centre for Work Safety and Human Engineering.

1973-1975: Visiting Assistant Professor, Institute of Aviation and Dept. of  
Psychology, University of Illinois at Urbana-Champaign.

1970-1973: Instructor, Department of Psychology, Tel Aviv University.

1967-1970: Assistant, Department of Psychology, Tel Aviv University.

1964-1966: Clinical Intern at the Psychiatric Clinic of Hadassah Hospital in  
Jerusalem.

1962-1966: Teaching & Research Assistant at The Hebrew University.

#### Visiting Positions:

2011 (Aug-Sept.) Visiting Professor. Columbia University, School of Medicine, Dept.  
eurology. U.S.A.

2010 (Jan.-Feb.) Visiting Professor. Nanyang University, Faculty of Mechanical and Aerospace  
Engineering, Singapore

2009 (Nov. Dec) Visiting Professor, University of Montpellier 1, Dept. of Movement Sciences,  
France

2009 (Aug.-Oct.) Visiting Professor. Scola Superiore St'Anna, PECRO Laboratory, Pisa, Italy

2009 (Feb.-July) Visiting Professor. Columbia University, School of Medicine, Dept. Neurology.  
U.S.A.

2000 Visiting Professor, Monash University, Dept. of Psychology, Accident Research Center.  
Swinburne University of Technology, School of Information Technology. Melbourne,

## Australia.

- 1995-1996 Visiting Scholar, Beckman Institute for the Advancement of Science and Technology . University of Illinois at Urbana Champaign.
- 1990: George A. Miller Visiting Professor of Psychology, Industrial Engineering and Aviation, University of Illinois at Urbana-Champaign.
- 1982-1983: George A. Miller Visiting Professor, University of Illinois at Urbana-Champaign.
- 1983: Visiting Scientist, Man Vehicle Division, NASA-(summer), Ames Research Center, Moffett Field, California, U.S.A.
- 1978: Visiting Scientist Department of Psychology, (summer), University of Illinois at Urbana-Champaign.
- 1976,1977: Visiting Scientist, Cognitive Psychophysiology,(summer), Laboratory. University of Illinois at Urbana-Champaign.
- 1973-1975: Visiting Assistant Professor, Institute of Aviation and Dept. of Psychology, University of Illinois at Urbana-Champaign.

**Administrative Posts:**

- 2005 - 2009: Member of the Technion Senate Steering Committee.
- 2004 – 2008: Member of the Technion Standing Search Committee for Technion Deans.
- 2003 – 2009: Chairmain of Technion appointments professional committees 2001- 2003  
Member Technion Committee for Appoitment of Senior Faculty
- 1999- 2000 Member of the Technion Academic Development Committee
- 1996-1999 Member of the Technion Senate Steering Committee (Vaada Merakezet)
- 1996-2011 Director of Technion, Max Wertheimar MINERVA center for cognitive processes and human performance
- 1995-1997 Member of the Technion Academic Development Committee
- 1994-1995 Asistant to the Technion Senior Vice President for Academic Affairs, In charge of academic policy development.
- 1992-1994 Head, Faculty Research Center for Industrial Engineering and Management.
- 1992-1994 Member, Neeman Institute Committee for Conference Grant Awards.
- 1992-1994 Member, Technion Committee for the Appointment of letrurers and Senior Lecturers.
- 1991- 2015 Director, Research Center for Work Safety and Human Engineering.
- 1991- Chairman, Technion Safety Council.
- 1989,1991 Chairman, Committee of the Technion, Haifa University Joint Research Fund
- 1985-1989: Coordinator of Graduate Studies, Faculty of Industrial Engineering and Management, Technion.
- 1985-1987: Technion Graduate Studies Committee.
- 1983-1985: Head, Behavioral Sciences Program, Faculty of Industrial Engineering and Management, Technion.
- 1978-1982: Director, Research Center for Work Safety and Human Engineering.
- 1979: Certified by the Israeli Psychological Association as an Expert, Supervisor, and Instructor in the fields of Human Engineering, Personnel Selection, Work Safety, Training Development, and Man-Machine Modeling.

**Israel Defence Forces**

1978-1981: Senior Scientist, Human Factors - Israel Airforce .  
 1975-1978: Head Human Factors, Israel Air Force.  
 1970-1975: Senior Research Psychologist, Israel Air Force, Institute of Aviation  
 Medicine .  
 1968-1970: Acting Head, Research Unit, Manpower Division, Israel Defence Forces .  
 1966-1968: Senior Research officer, Research Unit, Manpower Division, Israel Defence  
 Forces .

### **Public National and International Committees:**

1981-1985: Founder and president, Israel Ergonomic Association.  
 1984 – 1994: Delegate of Israel and Member of the governing board of the International  
 Ergonomic Association  
 1986: Member of a National Committee, appointed by the Minister of  
 Transportation, to recommend new procedures for Driver Education and  
 Driving Tests.  
 1989: Member of a National Committee, appointed by the Minister of  
 Transportation, to develop standards for Work Schedules of Pilots and Flight  
 Engineers.  
 1996 - Member of the Board of Governors of the National Institute of Safety and Health  
 (appointed by the Minister of Labor and Social Affairs)  
 1996 – 2004 Member of the Executive Council of the International Association for the Study of  
 Attention and Performance.  
 1998 -2002 Chair, the International Association for the Study of Attention and Performance.  
 2004 – present Member of investigation committees of accidents in health care, appointed by the  
 Ministry of Health  
 2010 – Member of the MINERVA Centers General Committee, Berlin Germany  
 2011 – 2014 Member of the Expert Advisory Committee for Life and Physical Science in  
 Space of the European Space Agency (ESA) and the European Science Foundation (ESF).

### **Editorial Experience:**

Associate Editor: European Journal of Cognitive Psychology, 1994 - 1996

Member of Editorial Board:

Acta Psychologica, 1984--1995.

European Journal of Cognitive Psychology, 1988-1992.

International Journal Of Human Computer Interaction, 1989-1994.

Psychology - Israel Journal of Psychology, 1990-1992.

Human Factors – 2001 – 2005

Journal Of Experimental Psychology:Applied -2007 - 2009

Reviewer:

Psychological Review

Journal of Experimental Psychology:General

Journal of Experimental Psychology: Human Perception and Performance

American Journal of Psychology.

Journal of Experimental psychology:Applied.

.Journal of Experimental Psychology: Memory and Learning.

Psychological Bulletin and Review

Psychophysiology.

Human Factors

Ergonomics.  
 Transactions IEEE Systems Man and Cybernetics.  
 US. National Science Foundation (NSF): Panel on  
 Memory and Cognition.  
 Israel Academy of Science.  
 US – Israel, Bi-National Science Foundation (BSF).  
 Germany-Israel Research Foundation (GIF).

**Awards:**

"Hanadiv" Fellowship 1982/1983, "Hanadiv" Foundation, Switzerland.  
 George A. Miller Distinguished Scholar Fellowship 1982/83, University of Illinois at  
 Illinois at Urbana-Champaign.  
 George A. Miller Distinguished Scholar Fellowship 1990, University of Illinois at  
 Illinois at Urbana-Champaign.  
 Human Factors and Ergonomics Society, Jerome H. Ely award 1995, for the best paper  
 published in Human Factors in 1994.  
 Recipient together with A. Koriat of the 1995 German MINERVA Foundation endowment grant  
 of 3 million dollars, for establishing a joint Technion -Haifa University Research Center for the  
 Study of Cognitive Processes and Human Performance  
 Elected Fellow of the Human Factors and Ergonomics Society, 1996  
  
 Yigal Alon Chair, for the Study of Human at Work. 1998.  
  
 Elected Fellow of the International Ergonomics Association, 2000.  
  
 Hal Henrick Distinguished International Colleague Award 2013, for outstanding contributions to the  
 Human Factors and Ergonomics field. The Human Factors and Ergonomic Society. U.S.A.

**Keynote and Plenary presentations**

**International Congress of Psychology (ICP )** (keynote address) Training in virtual  
 environments July 2012, Cape Town, South Africa

**Skills International Conference**, 2011, (Plenary lecture) Training of Perceptual Motor Skills in  
 Multimodal Virtual Environments. (2011) Montpellier France.

**Third International Conference on Applied Human Factors and Ergonomics** (Invited  
 symposium) Skills training in multimodal virtual environments. (2010). Miami Florida, USA

**International Conference on Multimodal Interfaces for Skills Transfer**. 2009 (plenary  
 lecture). Assessing the training potential of the Virtual Reality Training Platforms of Skills  
 Bilbao Spain, 2009.

**XXIX International Congress of Psychology**, 2008, (Invited Symposium) The factorial  
 structure of the differences between individuals in their ability to focus on a task and switch  
 between tasks. (2008), Berlin, Germany.

**The 28<sup>th</sup> International Congress of Psychology**, 2004, (Kenote adress) Control Processes in the formation of task units, (2004) Beijing, China.

**Conerence on Mind and Brain**,1994, (Plenary lecture) Attention Control: Explorations of the Work of an Executive Controller. Kyoto, Japan, 1994

**The 1st International Conference on Human Error in Anesthesiam** 1991 (Plenary lecture). Mental workload and operator performance Asilomar, CA, March, 1991.

**The Man-Machine Interface: Behavioral and Biomedical Advances in the Study of Workload**, 1978 (plenary lecture). "Human performance and residual capacity". Air Line Pilots Association: Washington, August, 1978.

**The 25<sup>th</sup> International Congress of Psychology**, 1992 (keynote address). Analysis and measurement of mental workload. Brussels, Belguim 1992.

**Attention and Performance XIV: Synergies in Experimental Psychology, Artificial Intelligence, and Cognitive Neuroscience - A Silver Jubilee**, 1991, (plenary lecture). The skill of attention control: Acquisition and execution of attention strategies. An Arbor Michigan, 1991

**The 1st International Conference on Human Error in Anesthesia**, 1991 (Plenary lecture). Mental workload and operator performance Asilomar, CA, March, 1991.

**The 9th Carmel Conference on Workload and Training**, 1987 (Plenary Lectures). "Implications of individual differences in attention capabilites to the design of engineering systems. Carmel, California, January1987

**The 21th Meeting of the Israeli Psychological Association** 1987(Plenary lecture). "Why do we need consciousness - an experimental psychologist and human factors specialist view". Tel-Aviv, March, 1987.

**NATO conference on Energetics and Human Information Processing**. 1984, (plenary lecture) "In defense of resources: On structures, energies, pools and the allocation of attention. Les Arc, France, 1984.

**Sixth Annual Workshop on Cognitive Psychophysiology** 1983 (Plenary lecture) "Intensive and time related aspects of mental load". Villa Serbelloni, Bellagio, Italy,December 1983.

**Conference on Cognition and Motor Processes** 1982 (Plenary lecture), "Visual imagery as a mnemonic aid to the acquisition of a data-entry skill" University of Bielefeld, Center for Interdisciplinary Research (ZIF), West Germany, July, 1982

**Conference on Cognition and Motor Processes** 1982 (Plenary lecture) "S-Oh-R: Oh stages Oh resources University of Bielefeld Center for Interdisciplinary Research (ZIF), West Germany, July .1982

**Second U.S. Air Force Review of Basic Research in Flight and Technical Training 1979**  
(plenary lecture) "Capacity interference and concurrence costs in dual task performance".  
U.S. Air Force Academy, Colorado, March .1979

**US Air Force Symposium on Basic Research in Flight and Technical Training 1978,**  
(plenary lecture). "Task load and operator attention capacity in time sharing performance". USAF  
Academy, Colorado Springs April 1978,

**ARPA Conference on Biocybernetic Applications for Military Systems,1978** (Plenary  
lecture) "Quantifying workload". Chicago, April .1978

**The Man-Machine Interface: Behavioral and Biomedical Advances in the Study of  
Workload, 1978** (plenary lecture). "Human performance and residual capacity". Air Line Pilots  
Association: Washington, August, 1978.

**Invited Colloquia:**

August 1983 - Workload Branch, Wright Patterson Airforce Base, Dayton, Ohio.

Topic: Two day seminar on workload measurement. (Under window on science  
program . )

May 1983 - Dept. of Psychology, Ohio State University .

Topic: Transcription skills .

January 1984 - Center for Cognitive Sciences, University of California, San-Diego (UCSD).

Topic: Typing with a two hand chord keyboard .

January 1984 - Dept. of Psychology, University of California San-Diego (UCSD)

Topic: Psychophysics of workload .

January 1984 - Dept. of Psychology, University of Washington at Seattle.

Topic: Representation of action plans in long term memory .

March 1984 - Dept. of Industrial Engineering and Operations Research, University of Toronto,  
Toronto, Canada . Topic: Transcription skills .

June 1984 - Center for Advanced Studies, Stanford University , Stanford, California.

Topic: Psychophysics of workload .

July 1984 - Institute for Perception TNO, Soesterberg, The Netherlands.

Topic: One day workshop on the theory of processing resources .

July 1984 - Institute for Psychology, Technischen Hochschule Aachen, West Germany.

Topic: Psychophysics of workload .

October 1986 - NASA Ames Research Center, Man-Machine Systems Division, California, U.S.A.

Topic: Training of complex skills

June 1988 - University of Technology, Berlin. European Meeting on "Workload Training and  
Performance in Advanced Systems". Topic: Training of complex skills .

October 1989 - A hworkshop within the 33rd Annual Meeting of the Human Factors Society. Topic: In-  
depth analysis of accidents at work .

September, 1990 - Dept. of Psychology, Ohio State University

Topic: Training and development of the skill of attention control .

October, 1992 - Three days Window on Science Visit. Brooks Airforce Base, Human Resources

Laboratoies, San Antonio Texas. Topic: Seminar of the use of computer game based trainers,  
for the development of flight skills .

- November 1993 - George Masson University, U.S.A.  
Topic: The development and training of complex skills .
- October 1994 - Risk Research Center, Stockholm School of Economics, Sweden.  
Topic: Compensatory behavior in coping with system malfunctions .
- October 1994 - Univ. of Linköping, Sweden.  
Topic: Efficient allocation of responsibilities among team members performing complex and demanding tasks .
- October 1994 - The Max-Planck Research Institute of Psychology. Munich, Germany.  
Topic: Switching attention between tasks: Explorations of the work of central executive .
- February 1996 - Three days Window on Science Visit. Brooks Airforce Base, Human Resources Laboratories, San Antonio Texas. Topic Switching attention between tasks.
- August 1996 - Dept. of Psychology, Univ. of Pennsylvania. Topic Studies of executive control processes.
- September, 1997. Institute of Arbeitsphysiologie, Dortmund Germany. Topic: Task switching and executive control.
- September, 1997. Max Planck Institute, Munich, Topic: Task switching and executive control.
- September, 1997. Dept. of Psychology, Univ. of Würzburg, Germany. Topic: Task switching and executive control.
- October, 1999. Dept. of Psychology, Wright State University, Dayton, Ohio, USA. Topic: On the limits of performance: Control processes the neglected dimension.
- August, 2000. Dept. of Psychology, Univ. of Western Australia, Perth, Australia. Topic: On the limits of performance: Control processes the neglected dimension.
- September, 2000, Dept. of Psychology Univ. of Queensland, Brisbane, Australia. Topic: On the limits of performance: Control processes the neglected dimension.
- September, 2000. Dept. of Psychology Univ. of Melbourne, Australia. Topic: Switching tasks and attention policies.
- October, 2000 Dept. of Psychology, Univ. of Otago, Dunedin, New-Zeland, Topic: On the limits of performance: Control processes the neglected dimension.

### **Research Grants:**

#### U.S. Army - Army Research Institute

1. Ultradian rhythms in prolonged human performance. With Dr. Peretz Lavie. 1977-1979. Total grant amount \$55,000.

#### Israel Ministry of Labor & Social Affairs. The Committee for Research Prevention in Occupational Safety & Health

2. Task load. 1975-1979, total grant amount IL 534,442.
3. Physiological rhythms. 1975-1979, total grant amount IL 545,789.
4. In depth investigation of work accidents. 1980-1982, 2,800,000 Israeli Shekel.  
 Research team: 3 people.
5. A study of accidents proneness. 1980-1984, 2,800,000 Israeli Shekel. Research team: 5 people.
6. In depth investigation of work accidents in the chemical industry and in transportation of materials. 1983- continuing, 200,000 New Israeli Shekel.  
 Research team: 3 people.
7. Human errors in treatment and diagnosis in an intensive care unit. 1987 - 1992, \$175,000. Research team 5 people.
8. Assessment of operator willingness to take risks and compensate for malfunctions in system operation. 1989-1994, \$360,000. Research team: 4 people.
9. Algorithms for the division of responsibilities among team members performing a

- demanding task. 1992-1996, \$450,000. Research team, 5 people.
10. Study of dynamic visual displays. 1995-1997, \$ 200,000. Research team 4 people.
11. Introducing Human Factors and Safety to the Workplace. 1998 - 2009 . A yearly budget of \$ 700,000. Research team of 25 people.

The U.S. Airforce Office of Scientific Research, AFOSR

12. Task load and operator attention capacity in time sharing performance. 1975-1982, \$380,000. Research team: 5 people.

NASA-Ames Research Center

13. The measurement of workload in engineering systems. 1983-1986, \$150,000. Research team: 3 people.
14. The use of computer games for the training of complex skills. 1986-1988, \$125,000. Research team 5 people.
15. Augmentation and training of pilot perceptual and control capabilities in night flights. 1987-1992, \$230,000. Research team 4 people.
16. The use of computer games for the training of complex skills, 1989-1990, \$60,000. Research team: 3 people.
17. A cognitive game theoretic analysis of conflict alerts in air traffic control, 1997 -1998, \$ 60,000 with Dr. Ido Erev, research team 3 people

U.S. Office of Naval Research. Program in Personnel Selection and Training

18. An information processing approach to the study data entry skill. 1983 - 1986, \$240,000. Research team: 3 people.

Defense Advanced Research Projects Agency ARPA

19. Learning strategies for complex computer games. 1984-1986. \$100,000. Research team: 3 people.

European Community

20. Visual interaction and human effectiveness in the cockpit. 2000-2003, \$266,000 with Prof. A. Grunwald. Research team 5 people. International collaboration with partners from UK, Netherlands, Sweden, Denmark and Poland.
21. Skills: Multimodal Interfaces for the Capturing and transfer of Skill. 2006-2011. 963,000 Euro, with Eldad Yechiam. An integrated project, 15 European partners, 9 countries. Total project award 10,000,000 Euro.

**Other:**

22. Techbion Research Fund - Electrophysiological and behavioral measures of planning and conduct of movement, 1989-1990, \$1,700.
23. Town of Carmiel - Human Factors Analysis of a project interfacing Carmiel homes and institutes on a computer network. 1994-, \$10,000. Research team, 5 people.
24. Israel Defence Ministry. Effects of sleep deprivation and Melatonin on pilot performance. 1998-1999.\$150,000. Joint research with Prof. P. Lavie.
25. Hadassah University hospital Human factors and safety in Emergency Units, 2000-2001, \$30,000
26. Kupat Hulim –General health Care Services Human Factors and Safety in Medical Services, several projects. 1998-2001, \$55,000. Project team of 5 people.



27. The Israel National Institute for Health Policy and Health Services Research Analysis of emergency department performance through simulation, 2001-2002, \$50,000. With Dr. D. Sinreich.

**Patents:**

Chordic Keyboard System, Gopher, Hilburn & Wickner U.S. Patent 5,493,654 Feb. 20, 1996.

Yechiam, E., Erev, I., Gopher, D., & Erev, V. (2000). Patent Application No. 137852. A method and device for improving touch-typing. Owner of the Type-Nag™ trademark.

**Post Doctoral Fellows**

Yoachim Mayer BGU, 1995-1998

Johnatan Levy, USA 2001-2003

Cristina Iani, Italy, 2002 -2004

Dror Lev, BGU, 2007-2009

Nirit Gavish, Technion, 2007 -2011

Stas Krupenia, Australia. 2007-2009

Arava Kallai, BGU 2008

Maria Korman, Weitzman, 2009 – 2011

Anna Barlasov, Hebrew U. 2010-2012

**Graduate Students:**

**Graduated**

Ph.D.

North, R.A., Task components and demands as factors in dual task performance. U.S. Univ. of Illinois, 1976.

Brickner, M., Improving time sharing skills by voluntary control on processing resources, 1981.

Bergman, Y., Direct and indirect factors in motion perception, 1982.

Fossfeld, N., Cognitive and motor aspects of data entry with a two hand chord keyboard, 1985.

Spitz, G., Voluntary control of mental resource allocation: Its nature and development, 1986.

Lamm, O., Electrophysiological brain measures of mental workload, 1988.

Badihi, Y. A comparative analysis of the formal properties of knowledge representation of doctor and nurses on their patients, 1994.

Barzillai, O. The effect of knowledge level on compensatory behavior during malfunction conditions, 1994.

Grunshpan Y. The influence of mental workload on the selection and efficiency of behavior, 1995.

Itkin R. Information and utility considerations in game theory analysis of two person interaction tasks, 1997.

- Haramati, H. Training in team work: exploring the influence of similarity in basic ability profiles. 1997.
- Iani Christina Effects of task difficulty and invested mental effort on peripheral vasoconstriction. 2001( with Prof. P. Lavie)
- Armony L. The generalization of attention switching ability. 2001
- Yechiam Eldad A strategy based model of visual dominance in perceptual motor tasks, 2002.
- Hupert – Graff Gil. Comparative Study of learning procedures in human and in neural networks. 2005.
- Kahana Allon Workload measurement of team interaction style during complex task execution. 2005.
- Gavis Nirit. Developing trust in simulation based decision aids, 2007
- Yael Yariv. Timeout: The effects of short briefing on team performance in the operation room.(with Yoel Donchin) 2008.
- Ido Morag developing a new approach for studying and resolving human factors and safety problem in daily hospital work. (with Ido erev). 2009
- Shpilinger Avishag. The influence of web based medical information systems on work patterns of family physicians. 2008
- Efrat Kedmi. Development of integrated patient status map in neonatal intensive care, 2011
- Yael Orbach Communication and information exchange between physicians and Nurses in Neonatal units, 2011
- Yifat Shor: Skill acquisition and training of rowing in a multimodal virtual reality training simulator, 2017.
- M.Sc.
- Gleason Snashell, Depth perception in synthetic pictorial displays. U.S. Univ. of Illinois, 1975.
- Fineman, T., Problems and approaches to the design of a computerized diagnosis and trouble shooting system for electronic equipment, 1982.
- Arzi, N., Effects of self control and payment manipulations on resource allocation, 1984.
- Raij, D., Development of scales to evaluate the perceptual and motor behavior, 1988.
- Harel, D. Cognitive and motor processes in learning of typing skills, 1989.
- Barzily, O., Contrasting the relative influence of acquisition methods and execution conditions on the representation of motor skills in long time memory, 1989
- Zvuloni Amir (with Prof. P. Lavie) Correspondence between Pysiological indices of 24 hours sleep cycle and performance efficiency of motor and verbal tasks, 1991.

- Bareket, T., Contrasting approaches to the training of complex skills, 1991.
- Tirosh, V., Comparing dichoptic vision in lateral and longitudinal motion, 1992.
- Mayan, L., Development of a trainer for target detection in FLIR images, 1991.
- Berger, Y. (with Dr. H. Spitzer). Measurement of Visual Attention load, using Signal Detection Theory, 1992.
- Seagull J. Training schedules to improve flying with a single eye helmet mounted displays, 1995.
- Shamo, M. Comparison of graphic and alpha-numeric modes for the display of dynamic information, 1996.
- Armoni, L. Attention switching between tasks - effects of learning and advanced preparation, 1996.
- Tal Oron, Process control simulation in dynamic display, 1997.
- Field -Haramati Anat. Individual differences in attention control capabilities, 1998.
- Weinstein M. Processing of tables and graphs - Sensitivity and response criteria differences. 1999.
- Bitterman N. Design of display for surgeons and anesthesiologists in open chest surgeries. (co-advisor - Prof. Gideon Oretsky) 2000.
- Meir H. Comparing performance measures and subjective assessments of experience patterns. 2000.
- Danon T. Development of a training program for human factors and safety, based on behavior modification models. (with Dr. Y. Greenshpan). 2000.
- Yechiam E. The relative merit of the emphasis change training method: A quantitative model and applications (with Prof. Erev I.) 2000.
- Sivan R. A comparative study of domain experts and novices in the mastering of a complex task. 2001.
- Carmi D. The time function influence of Knowledge of Results on skill learning. 2001
- Ben -Barak S. Mental models and objective flow measures of doctors and nurses in a hospital selection unit. (with Dr. D. Sinreich). 2001
- Barnea Deganit, What constitute a task unit. 2002
- Bar-on Sopher A. Individual differences in attention control. 2003.
- Darzi Tamar. Objective and subjective indices of performance competence. 2002.
- Inselbuch Michal, On the ability to prepare for task switching. 2003.
- Orit Rapaport. Design principles of labels for hazardous materials. 2002 (with A. Parush).

Ilan Palatin . Human factors principles in the design of medication labels. 2004.

Hadas Admon . The big brother and justice perception: Electronic performance monitoring , procedural justice, perceptions and performance in customer service work. 2005. (with Anat Rafaeli)

Sheffer Oded. The influence of differential instructions on control processes and situation awareness. 2005.

Shani Guy A training approach to to bridge the gap between wizards and macro uses when working with computers 2007.

Olga Chuntunov Individual differences in task switching with flankers, 2007.

Rotem Lampfroomm: Virtual Reality training of Juggling Skills, 2013

Avichay Baram: Comparative study of working memory with unimodal and multimodal presentation of Haptic and Vision, 2014

Adi Singer: Multitasking executive control and training. 2015

Sharon Yogev: Adjusting simulator training format to ultrasound experts prior experience. 2016

Raya Rogov: Comparing segmented and integrated training formats in ultrasound simulator training 2017.

Itai Rosenwasser: Exploring transfer patterns of attention control skills. 2017

Taly Bonder: The joint effects of spatial precueing and transcranial direct current stimulation on visual acuity, 2017

### **Ph.D. in progress**

Ofir Yaakobi: Associations and dissociation between subjective, performance and neurophysiological measures of workload.

### **List of Publications:**

#### **Theses:**

M.Sc. Thesis: Similarity and Complementarity of Basic Needs in Married Couples. The Hebrew University of Jerusalem, 1968. Advisors: Dr. S. Breznitz and Dr. M. Zemach.

Ph.D. Dissertation: Patterns of Eye Movements in Auditory Tasks of Selective Attention. 1972, The Hebrew University, Jerusalem. Advisor: Prof. D. Kahneman.

#### **Books:**

1. Gopher D. & Koriat A. (Eds). (1999) **Attention and Performance XVII: Cognitive Regulation of Performance - Theory and Application**. Boston, MIT Press,
2. Donchin Y. & Gopher D (2011) **Around the Patient Bed: Human Factors and Safety in Health Care**. Carta Jerusalem, Israel (Hebrew). An English version has been published in (2013) by Taylor and Francis CRC, Florida US.
3. Bergemasco M. Bardy B. Gopher D.(Eds). (2012) **Skill Training in Multimodal Virtual Environments**. Taylor and Francis CRC press.

### **Papers in Journals and Book Chapters**

1. Gopher, D. and Kahneman, D. (1971) "Individual differences in attention and the prediction of flight criteria", Perceptual and Motor Skills, 14, 1335-1342.
2. Gopher, D. (1973) "Eye movement patterns in selective listening tasks of focused attention", Perception and Psychophysics, 14,(2), 159-264.
3. Gopher, D., Williges, B.H., Williges, R.C. and Damos, D.L. (1975) "Varying the type and number of adaptive variables in continuous tracking", Journal of Motor Behavior, 7, 159-170.
4. North, R.A. and Gopher, D. (1976) "Measures of attention as predictors of flight performance", Human Factors, 18, 1-14.
5. Gopher, D. and North, R.N. (1977). "Manipulating the conditions of training in time-sharing performance", Human Factors, 19, 583-593.
6. Adams, J., Gopher, D., and Lintern, G. (1977). "The effects of visual and proprioceptive feedback on motor learning", Journal of Motor Behavior, 9, 1977, 11-32.
7. Wickens, C.D. and Gopher, D. (1977). "Control theory measures of tracking as indices attention allocation strategies", Human Factors, 19, 349-365.
8. Rouse, W.B. and Gopher, D. (1977). "Estimation and control theory: Its application to modeling human behavior", Human Factors, 19, 315-329.
9. Lintern, G. and Gopher, D. (1978). "Adaptive training of perceptual motor skills", International Journal of Man-Machine Systems, 19, 1978, 521-551.
10. Navon, D. and Gopher, D. (1979). "On the economy of the human processing system", Psychological Review, 86, 214-253. Also published in Maital, S. and Maital S.L. (Eds.): Economics and Psychology. London: Elgar Reference Collection, 1993. also in Underwood, G. (Ed). Critical Writing in Psychology: Attention. U.K. Edward Elgar, 1994..
11. Gopher, D. and Lavie, P. (1980). "Short-term rhythms in the performance of a simple motor task", Journal of Motor Behavior, 12 (3), 207-219.
12. Gopher, D. and Navon, D. (1980). "How is performance limited: Testing the notion of central capacity", Acta Psychologica, 46, 161-180.
13. Lavie, P., Gopher, D., Fogel, R. and Zomer, J. (1980). "Ultradian rhythms in perceptual

motor tasks". In: L.C. Johnson, D.I. Tepas, W.P. Colcuchon, and M.G. Colligan (Eds.), The Twenty-four Hour Work Day, NIOSH, Washington, D.C.

14. Navon, D. and Gopher, D. (1980) "Interpretations of task difficulty in terms of resources: Efficiency, load, demand, and cost composition", Attention and Performance VIII, Lawrence Erlbaum and Associates, 294-315.
15. North, A.R., Gopher, D., and Roscoe, S. (1980). "Manipuland measurement of concurrent task performance. In S.N. Roscoe (Ed.), Aviation Psychology, Iowa State University Press.
16. Gopher, D. (1982). "A selective attention test as a predictor of success in flight training", Human Factors, 24, 173-183.
17. Gopher, D., Brickner, M. and Navon, D. (1982). "Different difficulty manipulations interact differently with task emphasis: Evidence for multiple resources", Journal Experimental Psychology: Human Perception and Performance, 8, 146-157.
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**Additional Papers presented at Conferences**

(Abstract published in the Proceedings)

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13. Gopher, D., (Invited) "Visual imagery as a mnemonic aid to the acquisition of a data-entry skill" Paper presented at a Conference on Cognition and Motor University of Bielefeld, Center for Interdisciplinary Research (ZIF), West Germany, July, 1982



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16. Gopher, D., "Principles of data entry with a two-hand chord keyboard" Annual International Meeting of the Israel Medical Association, Jerusalem, Israel, November Abstract published in Israel Journal of Medical Sciences, May . 1984
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26. Lamm, O. and Gopher, D., "Detecting bottlenecks in human information processing". Proceedings of the 20th Annual Meeting of the Israel Psychological Association, Bar-Ilan, February, 1985. (Hebrew)
27. Gopher, D., "Information processing and mental workload of human operators in engineering systems". Proceedings of the 21st International Congress of Applied Psychology , Jerusalem, Israel, July, 1986.

28. Gopher, D., Lavie, P. and Wollman, M., "Thirty-six hour correspondence between cycles of sleepiness and performance". Proceedings of the 5th Medical Week of Israel Medical Association, Jerusalem, Israel, September, 1986.
29. Gopher, D., Wagner, M., "Measurement of workload of military, air traffic, radar observers". Proceedings of the 5th Medical Week of Israel Medical Association, Jerusalem, Israel, September, 1986.
30. Gopher, D., "The use of computer games in the training of complex skills". Proceedings of IMITS 86, International Meeting On Intelligent Tutoring Systems, Efal, Israel, December, 1986.
31. Gopher, D., (Invited address). "Implications of individual differences in attention capabilities to the design of engineering systems". The 9th Carmel Conference on Workload and Training. Carmel, California, January, 1987.
32. Gopher, D., (Invited central lecture). "Why do we need consciousness - an experimental psychologist and human factors specialist view". The 21th Meeting of the Israeli Psychological Association. Tel-Aviv, March, 1987.
33. Gopher, D., "Cognition at your finger tips: a cognitive approach to the design of data entry devices". The second International Conference on Human-Computer Interaction. Honolulu, Hawaii, August, 1987.
34. Gopher, D., "Emphasis change on task subcomponents as a training method for complex skills". Proceedings of the Second Meetings of the European Society for Cognitive Psychology. Madrid, Spain, September, 1987.
35. Gopher, D., "Engineering psychology and selective attention". Tenth Annual Carmel Conference - Metacognition Processes in Human Information Processing, Carmel, California, January 1989.
36. Kimchi, R., Trainin, O. & Gopher, D. Can an eye serve as an effective cue for selective attention. 32nd Annual Meeting of The Psychonomic Society. San Francisco, California, November, 1991.
37. Gopher D., Development of skill trainers based on computer games: Prospects and issues. Proceedings of the Human Factors Society 36th Annual Meeting, 1992, p. 1284.
38. Gopher D., The effect of knowledge levels on compensatory behavior and interaction with complex systems. Sixth Conference of the European Society for Cognitive Psychology, September, 1993, Elsinore, Denmark.
39. Gopher, D., User interface: The next generation. NGITS' 93 The international workshop on next generation information technologies and systems. June, 1993, Technion, Israel.
40. Erev, I., Gopher, D., Itkin, R., Grunshpan, Y., Signal detection in two-person games: Implications to attention sharing of team members. 34th Annual meeting of The Psychonomic Society. November, 1993, Washington, DC.
41. Erev, I., Gopher, D., Meyer, J., & Itkin, R. (1995) Free riding at the perceptual level: The example of "two-person safety dilemma". 6th International Conference on Social Dilemmas, Netherlands Institute for Advanced Study in the Humanities and Social Sciences, NIAS, Wassenaar, Netherlands.

42. Meyer, J. & Gopher, D. (1996) Applying cognitive game theoretical analyses to two person signal detection. 29th Annual Meeting of the Society for Mathematical Psychology, Chapel Hill, NC.
43. Gilat, S., Meyer, J., & Gopher, D. (1996) Beyond Bayes' theorem: The effect of base rate information in consensus games. 29th Annual Meeting of the Society for Mathematical Psychology, Chapel Hill, NC.
44. Gilat, S., Meyer, J., Erev, I., & Gopher, D. (1996) The effect of the cost of disagreements on the detection of rare signals. Poster, Seventh Convention of the Committee on Occupational Health and Research, Ramat Gan, Israel.
45. Meyer, J., & Gopher, D. (1996) Graphic and tabular displays of system characteristics: Results of a pilot study. Poster, Seventh Convention of the Committee on Occupational Health and Research, Ramat Gan, Israel.
46. Gopher D. Armony, L. (1997) The ability to prepare for an attention switch and its generalization across task structure. The 38th Annual Meeting of the Psychonomic Society, November. Philadelphia, USA.
47. Gopher D., Field A., Haramati H. (1999) Individual Differences in Attention Processes. The 40<sup>th</sup> Annual Meeting of the Psychonomic Society. Los Angeles, USA.
48. Gopher D. (1999) The use of computer games in the study and training of complex skills. PlenaryAddress, Third International Symposium on Cognition, Education and Mental Health. Varanassi, India.
49. Gopher D., Field A., Haramati H. (1999) Individual Differences in Attention Control. Third International Symposium on Cognition, Education and Mental Health. Varanassi, India.
50. Gopher D., Sivan R., Iani C. (1999). A comparative study of domain experts and novices learning in a part task simulator. The 29<sup>th</sup> Annual meeting of the Society for Computers in Psychology. Los Angeles, USA.
51. Gopher D., Barnea D., (2002). Switching between tasks: What constitutes a task unit. The 42<sup>th</sup> Annual Meeting of the Psychonomic Society. Kansas City, Kansas, USA.
52. Yechiam, E. Gopher, D. (2003). A strategy based model to the interpretation of visual dominance in perceptual-motor tasks, The 43th Annual Meeting of the Psychonomic Society. Vancouver, Canada.
53. Gopher D. Invited Keynote (2004). Control Processes in the formation of task units. The 28<sup>th</sup> International Congress of Psychology, Beijing, China.

54. Kahana A., Gopher D., Grunwald A., Iani C., Lavie P. Invited (2004). Workload Distribution in the Glass Cockpit. The 28<sup>th</sup> International Congress of Psychology, Beijing, China.
55. Gopher D. Invited, (2005) Emphasis change as a training protocol for high demand tasks. Applied Attention, a festschrift meeting in the honor of C. Wickens. Urbana, Illinois.
56. Gopher D. (2005) Training of high demand tasks. ASCI 2005, Cognitive Interdisciplinary Conference, Briancon, France.
57. Gopher D., Chuntunov O., Yehene V., (2005). Inhibitive and Adaptive Control Processes in task switching. The 45th Annual Meeting of the Psychonomic Society. Toronto, Canada
58. Gopher, D., Chuntunov O., (2007). Individual Differences in Executive Control Functions. The 48 Annual Meeting of the Psychonomic Society. Long Beach, U.S.A.
59. Yechiam E., Gopher D., (2007). Deliberate suppression of vision as a training tool for multimodal skills. Beyond Movement, Pisa, Italy.
60. Gopher D. (2008). The factorial structure of the differences between individuals in their ability to focus on a task and switch between tasks. XXIX International Congress of Psychology, Berlin, Germany.
61. Gopher D., Bluman, H., Stern, Y. (2009). Training cognitive control in old adults. XVI meeting of the European Society for Cognitive Psychology, Krakow, Poland.
62. Gopher, D. (2010, Keynote address). Multimodal virtual reality training of perceptual motor skills. The D-CIS 3ed Human Factors Conference. Delft, The Netherlands
63. Rosenwasser, I, Gopher D.:(2017). Exploring transfer patterns of attention control skills. The 4th Conference on Cognition Research of the Israeli Society for Cognitive Psychology – Akko, Israel
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- Kessel, K. Gopher, D., Hess, A. and Libliech, I", "Comparative study of time clocks in high performance aircraft", Israel Defense Forces, 1972, pp. 35 , Hebrew
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- Gopher, D. and Wickens, C., "Strategies and attention allocation in dual task performance". University of Illinois at Urbana-Champaign: Aviation Research Laboratory. ARL-76-2/AFOSR-76-2, January, 1976.
- Lintern, G. and Gopher, D., "Adaptive training of perceptual and motor skills", University of Illinois at Urbana-Champaign: Aviation Research Laboratory. ARL-77-5, January 1977-RE.
- Navon, D. and Gopher, D., "On the economy of the human processing system: A model of multiple capacity. Technical Report AFOSR-77-1. Technion, Research Centre for Work Safety and Human Engineering, November.1977.
- Gopher, D., Navon, D., Chillag, N. and Dotan, . "Tracking in two dimensions as a function of dimension priorities and tracking difficulty (II)". Technical report AFOSR- 77-2. Technion, Research Centre for Work Safety and Human Engineering.
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