Galit Fuhrmann Alpert
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Citizenship: Israel, US.
Languages: Hebrew, English, (Italian).

FORMAL EDUCATION:

1995-2001 **Ph.D in Neuroscience**, *The Interdisciplinary Center for Neural Computation, The Hebrew University, Jerusalem, in collaboration with the Weizmann Institute of Science, Rehovot, Israel.* (Ph.D awarded 2002).

1999 **M.Sc in Neuroscience**, as a part of direct Ph.D track, *The Interdisciplinary Center for Neural Computation, The Hebrew University, Jerusalem, Israel.*

1990-1993 **B.Sc in Biology and Computer Science, "Amirim" program for exceptional students,** *The Hebrew University, Jerusalem, Israel.*

SCHOLARSHIPS AND AWARDS:

2006- UC President's Postdoctoral Award and Fellowship Program, University of California.

2003-5 Post doctoral fellowship, University of California, Berkeley.

2002 Post doctoral scholarship, The Weizmann Institute of Science.

1995-2001 Ph.D program for Neural Computation- full scholarship, The Hebrew University and the Weizmann Institute of Science.

1991-1993 "Amirim" program for outstanding students- full scholarship, The Hebrew University.

1991 Dean prize for outstanding students, The Hebrew University.

1984-1988 Makif-Dalet High School, Beer-Sheva, Israel.
"Hadran" Program for gifted students. (Majors: Physics, Mathematics, English)

OTHER STUDIES:

1989 Dept. Graphics Design, Meimad School of Arts and Design, Tel-Aviv, Israel.

1993 Italian Language and Art History, Linguaviva, Firenze, Italy.

- Various courses in music, drawing, photography and arts.

ACADEMIC RESEARCH:

2004- Study of functional network connectivity and dynamics of information flow in the human brain, based on the analysis of fMRI, EEG and intracranial data recorded from human subjects. Development of novel computational approaches for the analysis of neuroimaging data, to focus on temporal aspects of information processing and on inter-regional coupling during task performance. Application of the analyses to a variety of existing neuroimaging data sets.
In addition, setup of a simultaneous EEG-fMRI recording system and analysis tools to enable a study of brain dynamics with both high temporal and spatial resolutions, *The University of California, Berkeley* (Advisor: Prof. Robert T. Knight).

2003 Analysis of fMRI data recorded from human subjects under conditions of free viewing of dynamic audio-visual stimuli. Development and application of an inter-subject correlation analysis of the BOLD data, *The Weizmann Institute of Science, Rehovot, Israel* (Prof. Rafi Malach).

2002 Psychophysics research of face recognition, aiming to manipulate aqcuired memories. Testing predictions from attractor models of memory representation,

The Weizmann Institute of Science, Rehovot, Israel (Advisors: Prof. Misha Tsodyks and Prof. Dov Sagi).

1998-2001 Information flow in neocortical pathways. Development of mathematical models and analysis of information transfer across computational building blocks in the neocortex using information theory, *The Hebrew University, Jerusalem and the Weizmann Institute of Science, Rehovot, Israel* (Advisors: Prof. Misha Tsodyks, Prof. Henry Markram and Prof. Idan Segev).

1997 Development of a computational model for the Basal-Ganglia-Thalamo-Cortical Motor Loop, *The Hebrew University, Jerusalem, Israel* (Advisors: Prof. Hanna Parnas, Prof. Hagai Bergman and Dr. David Hansel).

1993 A mathematical model for Habituation, Sensitization and Classical Conditioning in the Gill-Withdrawal Reflex of Aplysia, *The Hebrew University, Jerusalem, Israel* (Advisor: Prof. Hanna Parnas).

1987 Determining the target site of the pesticide SMM in a bacterial model system, *Ben-Gurion University, Beer-Sheba, Israel* (Advisor: Prof. Zeev Barak).

PUBLICATIONS:

1. **Temporal Characteristics of Audio-Visual Information Processing,** Fuhrmann Alpert G, Hein G, Tsai N, Naumer MJ, Knight RT, *in preparation.*
2. **Muscle Contraction and Relaxation are Regulated by Changes in Coherent Activity within Frontal Motor Networks During Preparation to Movement,** Oga T, Fuhrmann Alpert G, Swann NC, Canolty R, Chung A, Knight RT, *in preparation.*
3. **Altered Prefrontal Function with Aging: Insights into Age-associated Performance Decline**, Solbakk AK, Fuhrmann Alpert G, Furst AJ, Hale L, Oga T, Suppiah S, Pickard N, Knight RT, *submitted.*
4. **Spatio-Temporal Information Analysis of Event-Related BOLD Responses,** Fuhrmann Alpert G, Sun FT, Handwerker D, D'Esposito M, Knight RT, *Neuroimage,* **34(4):** 1545-61 (2007; Epub 2006).
5. **Coherent Selective Inter-Subject Activity Patterns During Free Viewing of Audio-Visual Feature Film**, Hasson U, Nir Y, Levy I, Fuhrmann G, Malach R, *Science* **303(5664):** 1634-40 (2004).
6. **Multiple Mechanisms Govern the Dynamics of Depression at Neocortical Synapses**, Fuhrmann G, Cowan A, Segev I, Tsodyks M and Stricker C, *J. Physiol.* **557(2):** 415-38 *(2004).*
7. **Spike Frequency Adaptation and Neocortical Rhythms**, Fuhrmann G, Markram H and Tsodyks M, *J. Neurophysiol.* **88(2)**: 761-70 (2002).
8. **Coding of Temporal Information by Activity-Dependent Synapses**, Fuhrmann G, Segev I, Markram H and Tsodyks M, *J. Neurophysiol*. **87(1)**: 140-148 (2002).
9. **Distributed and Partially Separate Pools of Neurons are Correlated with Two Different Components of the Gill-Withdrawal Reflex in Aplysia**, Zochowski M, Cohen LB, Fuhrmann G and Kleinfeld D**,** *J. Neurosci.* **20(22):** 8485-92 (2000).

ABSTRACTS:

1. **Temporal Characteristics of Audio-Visual Information Processing,** Fuhrmann Alpert G, Hein G, Naumer MJ, Knight RT, *Organization for Human Brain Mapping 13th Annual Meeting,* June 10-14, Chicago (2007).
2. **Functional Connectivity and Information Flow in the Human Brain during Language Processing: evidence from ECoG data,** Fuhrmann Alpert G, Mullen T, Suppiah S, Edwards E, Canolty R, Dalal S, Soltani M, Kirsch H, Barbaro N and Knight RT, *Cognitive Neuroscience Meeting Annual Meeting,* May 5-8, NYC, NY (2007).
3. **Increased Motor Network γ-Band Coherence During Movement Preparation Predicts Short Reaction Times: an EEG Study,** Fuhrmann Alpert G, Oga T, Swann NC, Voytek B, Knight RT, *Society for Neuroscience Abstracts,* **774.15** (2005).
4. **Application of Information Theory for the Analysis of Neuroimaging (fMRI,EEG) data: Exploring Spatio-temporal Patterns of Brain Activations,** Fuhrmann Alpert G,

Sun FT, D'Esposito M, Knight RT, *Journal of Cognitive Neuroscience*, **Suppl. S: 36-36** (2005).

5. **The Implication of Coherent α– and β- Oscillations Between Medial Frontal and Lateral Central Motor Area During Simple Motor Task,** Oga T, Fuhrmann Alpert G, Swann NC, Chung A, Knight RT, *Journal of Cognitive Neuroscience*, **Suppl. S: 43-43** (2005).
6. **Reduced Anterior Cingulate Gyrus Activation in Normal Aging: An Event-Related fMRI Study,** Solbakk, AK, Hale L, Fuhrman Alpert G, Furst, A, Oga, T, Suppiah S, Pickard N, Knight RT, *Journal of Cognitive Neuroscience*, **Suppl. S: 155-155** (2005).
7. **Coherent Alpha And Beta Oscillations Between Supplementary And Primary Motor Areas During Motor Preparation,** Oga T, Fuhrmann G, Cannolty RT, Swann NC, Chung A, Mima T and Knight RT, *Society for Neuroscience Abstracts*, **Vol. 30** (2004).
8. **Release-Independent Depression in the Somatosensory Cortex,** Cowan A, Fuhrmann G and Stricker C, *Society for Neuroscience Abstracts*, **Vol. 28** (2002).
9. **Quantal Model for Dynamic Synaptic Transmission in the Neocortex,** Fuhrmann G, Cowan A, Segev I, Stricker C and Tsodyks M, *Society for Neuroscience Abstracts*, **Vol. 27** (2001).
10. **Information Content of Synaptic Transmission,** Fuhrmann G, Segev I and Tsodyks M, *Society for Neuroscience Abstracts*, **Vol. 26** (2000).
11. **Information Content of Synaptic Responses**, Fuhrmann G, Markram H and Tsodyks M, *NeuroSci. Lett.* **Suppl. 54**: S16 (1999).
12. **Spike-Frequency Adaptation in Neocortical Pyramidal Neurons Under Simulated *in vivo* Conditions**, Fuhrmann G, Tsodyks M and Markram H, *NeuroSci. Lett.* **Suppl. 51**: S12 (1998).
13. **Spike Adaptation in Neocortical Pyramidal Neurons Under Simulated *in vivo* Conditions,** *Society for Neuroscience Abstracts*, **Vol. 24** (1998).

INTERNATIONAL WORKSHOPS AND SYMPOSIUMS:

- *Cognitive Computing,* May 2007, Berkeley, CA.
- *Conference on Brain Network Dynamics*, UC Berkeley, January 2007, Berkeley, CA.
- *Being On Time: Temporal Views on Neuronal Coding*, January 2007, Jerusalem, Israel.
- *Computational and Systems Neuroscience,* March 2006, Salt Lake City, Utah.
- *Mathematics in Brain Imaging*, Graduate Summer School, July 2004, Institute for Pure and Applied Mathematics (IPAM), UCLA, LA, California.
- *Neuronal Plasticity and Dynamics*, European Science Foundation (ESF) Symposium, September 2000, The International Centre for Theoretical Physics, Trieste, Italy.
- *Physical Aspects of Biological Systems*, The 6th Minerva Winter School, February 2000, The Weizmann Institute of Science.
- *Neocortical Columns*, First Albert Misrahi Seminar, July 1999, Weizmann Institute of Science.
- *Methods in Computational Neuroscience*, Advanced Summer Course, August 1997, The Marine Biological Laboratory, Woods Hole, MA.
- *Topics in Neuroscience*, A Lecture Series Sponsored by the Sloan Center for Theoretical Neurobiology, September 1996, The Salk Institute, San Diego, California.
- *Fourth International Congress of Neuroethology*, September 1995, Cambridge, England.
- *Cortical Dynamics in Jerusalem*, Symposium on Experimental and Theoretical Issues in the Dynamics and Function of the Neocortex, June 1995, The Hebrew University, Jerusalem.
- *Learning Days in Jerusalem*, Workshop on Fundamental Issues in Biological and Machine Learning, May 1993, The Hebrew University, Jerusalem, Israel.

EMPLOYMENT:

2000-2001 *Compugen*, *Design and development of bioinformatic algorithms (C,Perl).*
In a team of algorithm development and implementation for an application, which is used to systematically extract information about the structure of genes, from biological data bases of genetic and proteonic sequences. Responsible for the

development and implementation of an algorithm for the search of antisense transcription, a possible mechanism for regulation of gene expression.

1997-2002 *The Hebrew University and Weizmann Institute of Science, Research (Matlab ,C,C++)*. Development of mathematical models, simulations and analysis of neural processes and their implementation.

1996-1997 *The Hebrew University, Unix System Administrator and Web Master.*

1994 *Scitex*, *Software engineer (C++).*
In a team developing an application for pre-press page editing. Responsible for the implementation of an interactive version of the TeX algorithm for word processing.

1993 *Science Oriented Youth*, *Instructor (computers)*.