

July, 2008

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SAHAR PIRMORADIAN

RESEARCH INTERESTS

Computational Neuroscience & Neural Modeling
Cognitive Neuroscience
Pattern Theory and its Applications
Image Processing
Nonlinear Dynamics

EDUCATION

B.Sc. in Computer Engineering, Sharif University of Technology, Tehran, Iran (Fall 2001 - Summer 2006)
Graduate coursework: Digital Signal Processing
GPA=15.62 out of 20

Special Interest Courses:

Signal Processing: 20/20
Analog Integrated Circuits: 20/20
Data Communication: 19.1/20
Digital Electronics: 18.5/20
Digital Signal Processing: 18.5/20

RESEARCH RESULTS

Thesis

Title: Patterns of Thought Based on Pattern Theory

Advisor: Prof. M.T. Manzuri Shalmani

Co-Advisor: Prof. Ulf Grenander

- Studying Golem Software in Patterns of thought, presented by Prof. Grenander, removing its some bugs and finding its possible applications
- Grade: 20 out of 20

Related to Thesis

- 'Simulating the Thinking of the Schizotypal Personality Disorder Ills with Pattern Theory', Supervised by the professor Ulf Grenander, Using Matlab as well as Grenander's manuscript. (my collaboration with Ulf is still going on)

Technical Reports

1. 'Capacity of Visual Working Memory for speed and direction' using Matlab as my training course. (in Persian)
2. 'Brain-Computer Interface', as report of Scientific and Technical Presentation Course.
3. 'A solution to Traveling Salesman Problem Using Genetic Algorithms' using C++ Code, as my final project of AI course. (in Persian)
4. 'Introduction to Cellular Learning Automata', as the project of AI course. (in Persian)

- **Hardware Projects**
 1. Simulation of Z80 CPU by VHDL
 2. Simulation of Traffic Light Controller by Verilog HDL
 3. Implementation of ATMEL 89C Series Flash Microcontroller Programmer

AWARDS AND HONORS

- In 2001, Ranked as the 5th, over 15000 Iranian students competing nationwide for the university entrance examination
- In 2008, winning a scholarship as a visitor student in the neuroscience institute SISSA, Italy.

RESEARCH EXPERIENCE

Winter 2005 – Spring 2005

- **Undergraduate Research**, Advisor: A. Alemi, Department of Computer Engineering, Sharif University of Technology, collaboration in EEG processing for action generation in Brain Computer Interface(BCI) systems by means of ICA and PCA in EEGLAB software

Summer 2005

- **Undergraduate Research**, Advisor: S. Nasr, ERP Laboratory, Medical School, Shahid Beheshti University, 144h of MATLAB programming for a psychophysical experiment measuring capacity of visual working memory

Winter 2008

- Advisor: Dr. Abbasian, The School of Cognitive Science, Institute for Studies in Theoretical Physics and Mathematics (IPM), Working on Potts Model of Semantic Memory Retrieval

Summer 2008

- Advisor: Prof. A. Treves, The Sector of Cognitive Science, SISSA, Working on Potts Model of Semantic Memory Retrieval

TEACHING EXPERIENCE

Sharif University of Technology

2002, Fall, Java Programming

Private Classes

2001-2007, Physics and Mathematics of High school

2003, Java Programming

2004, C++ Programming

2006, Mathematics I

ATTENDED COURSES

- “An Introductory Course on Computational Neuroscience/ Visual Psychophysics”, in Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, under the supervision of Dr. Arash Afraz & Baktash Babadi, spring 2005.
- “The Dynamical Foundation of Neuroscience”, Reference book: H. Wilson, in IPM, Tehran, Iran, under the supervision of Dr. Abbasian, summer and fall 2005.
- “Nonlinear Dynamics and Chaos”, Reference book: Steven H. Strogatz, in the electrical engineering department, S.U.T, Tehran, Iran, under the supervision of Dr. Farjami, fall 2006.
- “Stochastic Process”, Reference book: Sheldon M. Ross, in the

industrial engineering department, S.U.T, Tehran, Iran, taught by Dr. Hadji, fall 2006.

- “Logic of Mathematics”, Reference book: M. Ardeshir, in the department of mathematical science, S.U.T, Tehran, Iran, taught by Dr. M. Ardeshir, fall 2006.
- “Linear Algebra”, Reference book: J. Hefferon, in the department of mathematical science, S.U.T, Tehran, Iran, taught by Mr. Moghadasi, fall 2006.
- “Essentials of Neural Science and Behavior”, Reference book: Eric R. Kandel, in the electrical engineering department, S.U.T, Tehran, Iran, under the supervision of Dr. B. Vosoughi Vahdat, fall 2006–summer 2007.
- “Neural Engineering”, Reference book: C. Eliasmith and C. H. Anderson, in the electrical engineering department, S.U.T, Tehran, Iran, under the supervision of Dr. B. Vosoughi Vahdat, fall 2007

SKILLS

Technical Skills:

- Programming using MATLAB
- Programming Languages: C, C++, Java, PHP, MySql, Prolog, and IA-32 Assembly
- Designing Hardware Systems: Verilog HDL, VHDL, Pspice

Language Skills:

- Farsi(native), English (TOEFL: 597)

REFEREES

1. **Professor Ulf. Grenander** (B.Sc Thesis Co-supervisor)
L.Herbert Ballou University Professor (Emeritus):
Department of Applied Mathematics, Brown University, Rhode Island, USA.
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2. **Professor Alessandro Treves**
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3. **Dr. M. T. Manzuri-Shalmani** (B.Sc Thesis Supervisor)
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4. **Dr. Saeed Bagheri Shouraki**
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6. Dr. Bijan Vosoughi Vahdat

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URL: <http://ee.sharif.edu/~vahdat/>

7. Alireza Alemi Neissi

Graduated in Computer engineering from S.U.T, Tehran, Iran

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