Curriculum Vitae

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SOBHAN NADERI PARIZI

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Gender: Male
Date of Birth: September 21, 1985
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EDUCATION

KTH (Royal Institute of Technology) Sep/2008 – Present
Stockholm, Sweden
M.Sc. in Systems, Control, and Robotics

Amirkabir University of Technology (Tehran Polytechnic) Sep/2003 – Jan/2008
Tehran, Iran
B.Sc. in Computer Engineering (software discipline)

Final project: "*Implementation of adaptive continuous Hidden Markov Models integrated with grammatical language models towards a practical text-free speaker independent Persian speech recognition system*", **grade: 20/20**

Seyyed Kamaladdin e Mousavi High School 1999 – 2003
(governmental organization for talented students)
Kerman, Iran
Diploma in Mathematics and Physics

RESEARCH INTERESTS

Computer Vision
Human Action Recognition
Contextual Priming in Image Classification and Object Detection
Visual Object Detection and Recognition

Machine Learning
Probabilistic Learning Methods

RELEVANT GRADUATE COURSES

Course Name	Instructor	Grade
Geometric Computing and Visualization	Stefan Carlsson (stefanc@nada.kth.se)	A
Applied Estimation	Patric Jensfelt (patric@kth.se)	A
Artificial Intelligence	Patric Jensfelt (patric@kth.se)	A
Image Processing and Computer Vision	Danica Kragic (danik@csc.kth.se)	A
Image Based Recognition and Classification	Josephine Sullivan (sullivan@nada.kth.se)	A
Machine Learning	Örjan Ekeberg (orjan@nada.kth.se)	A
Robotics and Autonomous Systems	Patric Jensfelt (patric@kth.se)	A

TEACHING EXPERIENCES

Teaching Assistantships, Computer Engineering Department, Tehran Polytechnic university

Course	Responsibility	Date
Compiler Design Principles	Design, assessment, and help sessions for final project being a compiler for a Persian programming language	Spring 2007
Analysis and Design of Algorithms	Problem setter, examiner and complementary lecturer	Spring 2007
Data Structure and Algorithms	Problem setter and exercise session lecturer	Fall 2007

Miscellaneous

- **Lecturer** in **ACM/ICPC** training programs involving algorithms, problem solving techniques, graph theory, discrete math. — 2004 to 2007
- **Leader** of the special program for improving algorithmic and programming skills of **top-10 students** competing in semi-final round of National IOI, Allame Tabatabayi High School, Tehran, Iran — Winter-Spring 2006
- **Tutor** for undergraduate courses including the followings (informal): — 2005 to 2008
  - Theory of Formal Languages And Automata
  - Data Structures
  - Compiler Design
  - Digital Circuit Design

PUBLICATIONS

Computer Vision

- **S. Naderi**, D. Kragic, *What is Spatiotemporal Extent of Human Actions?*, to be submitted to ICPR 2010
- **S. Naderi**, I. Laptev, A. Tavakoli, *Modeling Image Context using Object Centered Grids*, Australia, DICTA 2009 (Oral)
- **S. Naderi**, A. Tavakoli, O. Aghazadeh, J.O. Eklundh*, Reading Street Signs Using a Generic Structured Object Detection and Signature Recognition Approach,* Portugal, VISAPP 2009 (Oral)

Journal Papers

- A. Askary, A. Masoudi-Nejad, A. Mizbani, **S. Naderi**, M. Purmasjedi, *N4: A Precise and Highly Sensitive Promoter Predictor Using Neural Network fed by Nearest Neighbors*, accepted in journal of Genes and Genetic Systems, to be published in 2010

Miscellaneous

- A.S. Shahmiri, **S. Naderi**, M.K. Akbari, *A New Error Correction Code*, France, ICLAN 2007 (Oral)

SELECTED PROJECTS

- **RESEARCH PROJECTS**

Semantically Coherent Histograms for Image Classification — Oct/2009 - Present

We establish **BoF** histograms in a smart structured way. Using different types of descriptors, we showed that extracting certain descriptors from the **right regions** will result in a **semantically more meaningful** representation of image. We use a **texture-based method** to identify the regions. This project produced one conference paper submitted to CVPR 2010 (access to the submitted version will be provided upon request).

Spatio-Temporal Context for Human Action Recognition — Jul/2009 - Present

Automatic recognition of human actions in **realistic** scenarios using **context priors**. The goal is to combine **information coming from actor bounding box** with **information coming from scene context** in an optimal way and study relative contribution of each information channel in recognition of several different action classes.
http://www.csc.kth.se/~sobhannp/docs/projects/action_context/project_info.html

Contextual Priming for Image Classification — Dec/2008 – Jul/2009

Modeling scene context of image using **spatial-aware histograms**. The main message was that forming spatial grids w.r.t. objects' bounding box (i.e. **Object Centered Grid**) results in a much more coherent and consistent model compared to the fixed-grid approach. This project produced one conference paper (DICTA 2009).

Urban Place Recognition — Feb/2008 – Nov/2008

This project was in collaboration with a **European research project** called MOBVIS. The objective was to add **place recognition** functionality to **mobile phones** by detecting street plates and **recognizing street names** fully automatically. This project produced one conference paper (VISAPP 2009). **Online demo** of the project can be found here: http://www.nada.kth.se/~att/project/plate/index2.php

Automatic Speech Recognition System Jan/2007-Dec/2007

Design and **implementation** of a text-free, speaker-independent **automatic speech recognition system** (with adaptation functionality) capable of extracting phoneme sequence from an input audio stream **in real time** and then construction of the complete spoken sentences. It was my **B.Sc. thesis** in which different models (such as **HMMs** and CFGs), search algorithms (e.g. **viterbi beam search**) and other learning methods were successfully used. The system was trained and **practically used for Persian language**. More about the project and some parts of the **project's executables** (including a general purpose HMM toolbox) as well as the report can be found here:
http://www.csc.kth.se/~sobhannp/docs/projects/LISSH/lissh_project_info.html

RoboCup-Rescue Simulation Sep/2004 – Feb/2006

Research On **Multi Agent Intelligent Systems** as a member of **Rescue Simulation Team**, In Robotic Research Center, Computer Engineering and IT Department, Amirkabir University of Technology (Tehran Polytechnic).

- **ACADEMIC PROJECTS**

Autonomous Navigator Robot Jan/2009 – Jul/2009

Design and fabrication of a small size **3-wheel robot** navigating through a maze using different sensors incl. **sonar, gyro, infra-red**. The goal was to detect specific objects (golf balls in certain colors) using an **onboard camera**, catch them, and move them out of the maze within a limited time and without crashing into the maze or hitting some visually specified obstacles.

Robot Localization and Mapping Jan/2009-Jun/2009

Implementation of **Kalman filtering** and **Particle filtering** methods in order to localize a simulated robot in different scenarios incl. **unknown association**, **outlier handling** and **kidnapping problem**.

Major undergraduate projects

- Design and Implementation of a **Compiler machine** generating C code from a synthetic procedural language
- Design and implementation of a **searching engine** capable of **content based ordering** of documents. Response time was **less than a second** on a database of plain texts as large as **5GB**.
- Implementation of **My Age of Empires** game in full graphical mode with all basic functionalities of the original game, a fancy and memorable experience!

- **MISCELLANEOUS**

Multi-agent game server 2006

Implementation of multi player **Game Server** and **Base-Agent** for Amirkabir University Programming Challenge. The software was used as the core simulator of the competition.

OFFICIAL PRESENTATIONS

Fast Concurrent Object Localization and Recognition, Computer Vision reading group, Computer Vision and Active Perception lab (CVAP), KTH, Stockholm, Sweden — 29 Oct 2009

Reading Street Signs Using a Generic Structured Object Detection and Signature Recognition Approach, International Conference on Computer Vision Theory and Applications (VISAPP), Lisbon, Portugal — 7 Feb 2009

A Practical Text-free Speaker Independent Speech Recognition System, B.Sc. thesis, Amirkabir University of Technology, Tehran, Iran — 26 Feb 2008

A New Error Correction Code, International Conference of Latest Advances in Networks (ICLAN), Paris, France — 6 Dec 2007

PROFESSIONAL EXPERIENCES

Computer Vision and Active Perception (CVAP) laboratory, KTH, Sweden — Jul/2009 – Dec/2009
Research engineer working on human action recognition under supervision of Prof. Danica Kragic.

OculusAI AB. (Computer Vision Technologies) — Mar/2008 – Jan/2009
Researcher and developer for face detection/recognition application and post-process filtering including monkey, cartoon, and nudity detection.

Computer Vision and Active Perception (CVAP) laboratory, KTH, Sweden — Mar/2008 – Mar/2009
Junior researcher working on texture classification and object detection/recognition under supervision of Dr. Alireza Tavakoli and Prof. Jan-Olof Eklundh.

Laboratory of Intelligent Speech Synthesis (LISS), Amirkabir University — 2007 - 2008
Researcher and developer for a Persian speech recognizer system.

Advanced Information and Communication Technology Center (AICTC) — Feb/2006 – Oct/2006
Developer on a JAVA enterprise software team. We designed and implemented J2EE multi tier enterprise applications such as e-learning solutions. This special product was the entire portal of a big higher education organization.

AWARDS AND HONORS

Top student in Systems, Control, and Robotics master program, KTH, Sweden	2009
50,000 Swedish Krona **scholarship**, KTH, Sweden	2009
25,000 Swedish Krona **grant**, MOBVIS project, KTH, Sweden	2008
6th place in ACM/ICPC **regional contest**, west-Asian site	2006
364th place among **500,000** participants in national university entrance exam, Iran	2003
Qualified for the **second round** of national Olympiad of Informatics	2001
Champion of local **volleyball league** in Stockholm with XSIS team	2009
9th place in national **collegiate sports Olympiad**, Volleyball league	2005

SKILLS AND PROFICIENCIES

Technical Skills

Java, C, C++, Matlab	Proficient
OpenCV, Eigen2 matrix library	Experienced
C#, Linux/Windows Programming	Intermediate
JSP, J2EE, MySQL, DB2	Intermediate
LATEX, Microsoft Office	Experienced

Languages

English	Excellent reading, writing, and speaking
Farsi	Mother tongue
Arabic	Familiar

SPORT ACTIVITIES

Volleyball

Member of XSIS team playing in Stockholm local league (first division)	2008 to Present
Member of Amirkabir University of Technology team	2005 to 2007
Member of Rafsanjan city team in national high school competitions	1999

Miscellaneous
Mountaineering, Table Tennis, Football

REFERENCES

Ivan Laptev, Researcher, INRIA-Willow/ENS, Paris, France, ivan.laptev@inria.fr
Patric Jensfelt, Assistant Professor, Center of Autonomous Systems, KTH, Sweden, patric@kth.se
Jan-Olof Eklundh, Full Professor, Computer Vision and Active Perception lab, KTH, Sweden, joe@nada.kth.se
Alireza Tavakoli Targhi, Doctor, Computer Vision and Active Perception lab, KTH, Sweden, att@kth.se