Amir R. Saffari A. A.
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Amir R. Saffari A. A.

Curriculum Vitae

Personal Information

- **Nationality:** Iranian
- **Marital Status:** Married

Education

2005-Now • **PhD** in **Computer Science**, Institute for Computer Graphics and Vision (ICG), Graz University of Technology, Graz, Austria.

1999-2001 • **M.Sc.** in **Biomedical Eng. (Bioelectrics)**, Department of Biomedical Engineering, Tehran Polytechnic (Amir Kabir University of Technology), Tehran, Iran, GPA 16.42/20.

1995-1999 • **B.Sc.** in **Biomedical Eng.**, Department of Biomedical Engineering, Tehran Polytechnic (Amir Kabir University of Technology), Tehran, Iran, GPA 16.43/20.

1991-1995 • **High School Diploma** in **Mathematics and Physics**, National Organization for Development of Exceptional Talents (NODET), Tabriz, Iran, GPA 18.34/20.

Reseach Interests

- Computer Vision, Object Recognition, Machine Learning, Unsupervised Learning, Large-Scale Learning.

Publications

Books, Book Chapters, and Journal Papers

- • Isabelle Guyon, Amir Saffari, Gideon Dror, Gavin Cawley, **Hands-On Pattern Pecognition**, *Book under final editorial process*.

2010 • Isabelle Guyon, Amir Saffari, Gideon Dror, Gavin Cawley, **Model Selection: Beyond the Bayesian/Frequentist Divide**, Journal of Machine Learning Research (JMLR), Vol. 11, Pages 61-87, 2010.

Publications (continued)

2010 • Christian Leistner, Amir Saffari, Martin Godec, Bernhard Zeisl, Horst Bischof, **On-line Semi-Supervised Boosting**, *submitted to* Pattern Recognition, Special Issue on Semi-Supervised Learning for Visual Content Analysis and Understanding, 2010.

2008 • Isabelle Guyon, Amir Saffari, Gideon Dror, Gavin Cawley, **Analysis of the IJCNN 2007 Agnostic Learning vs. Prior Knowledge Challenge**, Neural Networks, Vol. 21, Pages 544-550, 2008.

2006 • Amir Saffari, **Variable Selection using Correlation and Single Variable Classifier Methods: Applications**, Book Chapter, Feature Extraction: Foundations and Applications, Editors: Isabelle Guyon, Steve Gunn, Masoud Nikravesh, Lotfi Zadeh, Springer-Verlag, Pages 343-358, 2006.

2006 • Amir Saffari, **Book Review: Complex Worlds from Simpler Nervous Systems**, International Journal of Computational Intelligence and Applications (IJCIA), Vol. 6, Pages 569-572, 2006.

Peer Reviewed Conference Papers

2010 • Amir Saffari, Martin Godec, Thomas Pock, Christian Leistner, Horst Bischof, **Online Multi-Class LPBoost**, Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

2010 • Bernhard Zeisl, Christian Leistner , Amir Saffari , Horst Bischof, **Online Semi-Supervised Multiple-Instance Boosting**, Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

2010 • Jakob Santner, Christian Leistner, Amir Saffari, Thomas Pock, Horst Bischof, **PROST: Parallel Robust Online Simple Tracking**, Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010.

2010 • Martin Godec, Christian Leistner, Amir Saffari, Horst Bischof, **On-line Random Naive Bayes for Tracking**, International Conference on Pattern Recognition (ICPR), 2010.

2010 • Amir Saffari, Christian Leistner, Martin Godec, Horst Bischof, **Robust Multi-View Boosting with Priors**, *submitted to* European Conference on Computer Vision (ECCV), 2010.

2010 • Christian Leistner, Amir Saffari, Horst Bischof, **MILForests: Multiple Instance Learning with Randomized Trees**, *submitted to* European Conference on Computer Vision (ECCV), 2010.

2009 • Amir Saffari, Christian Leistner, Horst Bischof, **Regularized Multi-Class Semi-Supervised Boosting**, Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR), **Oral Presentation**, 2009.

2009 • Christian Leistner, Amir Saffari, Jakob Santner, Horst Bischof, **Semi-Supervised Random Forests**, Proceedings of IEEE International Conference on Computer Vision (ICCV), 2009.

2009 • Jakob Santner, Markus Unger, Thomas Pock, Christian Leistner, Amir Saffari, Horst Bischof, **Interactive Texture Segmentation using Random Forests and Total Variation**, British Machine Vision Conference (BMVC), 2009.

2009 • Amir Saffari, Christian Leistner, Jakob Santner, Martin Godec, Horst Bischof, **On-line Random Forests**, 3rd IEEE ICCV Workshop on On-line Learning for Computer Vision, 2009.

Publications (continued)

2009 • Christian Leistner, Amir Saffari, Peter Roth, Horst Bischof, **On Robustness of On-line Boosting A Competitive Study**, 3rd IEEE ICCV Workshop on On-line Learning for Computer Vision, 2009.

2009 • Inayatullah Khan, Amir Saffari, Horst Bischof, **TVGraz: Multi-Modal Learning of Object Categories by Combining Textual and Visual Features**, Proc. 33rd Workshop of the Austrian Association for Pattern Recognition, AAPR / OAGM, 2009.

2008 • Amir Saffari, Helmut Grabner, Horst Bischof, **SERBoost: Semi-supervised Boosting with Expectation Regularization**, Proceedings of European Conference on Computer Vision (ECCV), 2008.

2008 • Amir Saffari, Horst Bischof, **Boosting for Model-Based Data Clustering**, Proc. of 30th Symposium of the German Association for Pattern Recognition (DAGM 2008), **Oral Presentation**, Pages 51-60, 2008.

2007 • Amir Saffari, Horst Bischof, **Clustering in a Boosting Framework**, Proc. of Computer Vision Winter Workshop (CVWW), St. Lambrecht, Austria, Pages 75-82, 2007.

2007 • Isabelle Guyon, Amir Saffari, Gideon Dror, Gavin Cawley, **Agnostic Learning vs. Prior Knowledge Challenge**, Proc. of IEEE International Joint Conference on Neural Networks (IJCNN), Orlando, Florida, USA, Pages 829-834, 2007.

2006 • Isabelle Guyon, Amir Saffari, Gideon Dror, Joachim Buhmann, **Performance Prediction Challenge**, Proc. of International Joint Conference on Neural Networks (IJCNN), IEEE World Congress on Computational Intelligence (WCCI), Vancouver, British Columbia, Canada, Pages 2958-2965, 2006.

2005 • Michael Pfeiffer, Amir Saffari, Andreas Juffinger, **Predicting Text Relevance from Sequential Reading Behavior**, Proc. of the NIPS Workshop on Machine Learning for Implicit Feedback and User Modeling, Whistler, British Columbia, Canada, 2005. Challenge Winner.

Theses

2010 • Amir Saffari, **Multi-Class Semi-Supervised and Online Boosting**, *submitted,* PhD Thesis, Institute for Computer Graphics and Vision, Graz University of Technology, Austria.

2001 • Amir Saffari, **Analyzing Information Processing Models of Biological Neural Networks: A Time-Coding Approach**, *M.Sc. Thesis*, Biomedical Eng. Dept., Tehran Polytechnic (Amirkabir University of Technology), Tehran, Iran.

1999 • Amir Saffari, **Designing of a Stand-Alone Bedside Monitoring System using 80C196KC Micro-Controller and Graphic LCD**, *B.Sc. Thesis*, Biomedical Eng. Dept., Tehran Polytechnic (Amirkabir University of Technology), Tehran, Iran.

Technical Reports and Misc. Publications

2007 • Isabelle Guyon, Amir Saffari, Hugo Escalante, Gokhan Bakir, Gavin Cawley, **CLOP: a Matlab Learning Object Package**, NIPS 2007 Demonstrations, Vancouver, British Columbia, Canada, 2007.

2006 • Amir Saffari, Isabelle Guyon, **Quick Start Guide for CLOP**, Technical Report, Institute for Computer Graphics and Vision, Graz University of Technology and Clopinet, 2006.

2006 • Amir Saffari, Horst Bischof, **Video Tracking Red Light Enforcement**, Technical Report, Institute for Computer Graphics and Vision, Graz University of Technology, 2006.

Publications (continued)

2006 • Isabelle Guyon, Amir Saffari, Gideon Dror, Gavin Cawley, Olivier Guyon, **NIPS 2006 Model Selection Game**, NIPS Workshop on Multi-level Inference, Vancouver, BC, Canada, 2006.

2005 • Amir Saffari, **Unknown Environment Representation for Mobile Robot Using Spiking Neural Networks**, In Proceedings of WEC 2005, Transactions on Engineering, Computing and Technology, Volume: 6, Pages: 49-52, Istanbul, Turkey, June 2005.

2003 • Amir Saffari, **NIPS Feature Selection Challenge: Details of Methods**, NIPS 2003, Feature Extraction Workshop, Whistler, British Columbia, Canada, December 2003.

2001 • Amir Saffari, and Mehdi Azizian, **A New Information Compression Method Based on Chaotic Dynamics and Neural Networks**, In Proceedings of 1st International Conference of Cognitive Sciences, Tehran, Iran (in Persian).

2001 • Amir Saffari, and Mehdi Azizian, **A New Modeling View of Mind-Brain Interaction Using Chaotic Dynamics and Quantum Mechanics**, In Proceedings of 1st International Conference of Cognitive Sciences, Tehran, Iran (in Persian).

1999 • Amir Saffari, **A Review on OGY Algorithm for Chaos Control**, In Proceedings of 1st Symposium of Intelligent Systems, Tehran University, Tehran, Iran (in Persian).

Public Code

2010 • **PyBoosting:** Multi-class Supervised, Semi-Supervised Boosting and Random Forests (will be released in May).
`http://www.ymer.org/amir/software/multi-class-semi-supervised-boosting/`

2010 • **Shogun:** Ensemble, Boosting, and Random Forests methods for Shogun (will be available in next release).
`http://www.shogun-toolbox.org/`

2010 • **OMCLPBoost:** Online Multi-Class LPBoost.
`http://www.ymer.org/amir/software/online-multiclass-lpboost/`

2009 • **ORF:** Online Random Forests.
`http://www.ymer.org/amir/software/online-random-forests/`

2008 • **RHH:** Robust Hue Histograms.
`http://www.ymer.org/amir/software/robust-hue-histogram/`

2006 • **CLOP:** Machine Learning Toolbox for Matlab.
`http://www.ymer.org/amir/software/clop/`

2006 • **RSOM:** Recurrent Self-Organizing Maps.
`http://www.ymer.org/amir/software/recurrent-self-organizing-maps/`

2005 • **BNNToolbox:** Biological Neural Networks Toolbox
`http://www.ymer.org/amir/software/biological-neural-networks-toolbox/`

Activities

2010 • **Organizer** of CVPR 2010 tutorial on *Semi-Supervised Learning in Vision.*

2010 • **Developer** of Ensemble and Boosting Methods for *Shogun - A Large Scale Machine Learning Toolbox* (will be included in next release).

2010 • **Reviewer** for European Conference on Computer Vision (ECCV).

2010 • **Program Committee Member** of Online Leaning in Computer Vision Workshop, CVPR.

2009-2010 • **Editor** of *Hands-on pattern recognition* book.

2009-2010 • **Co-Organizer** of **Active Learning Challenge**, in AI Statistics (AISTAT), Sardinia, Italia.

2008-Now • **Reviewer** for IEEE Patter Analysis and Machine Intelligence.

2008-Now • **Reviewer** for Patter Recognition.

2007 • **Co-Guest Editor** for special issue of **Journal of Machine Learning Research** on **Model Selection**.

2007 • **Co-Organizer** of **Agnostic Learning vs. Prior Knowledge Competition**, as a part of **Data Representation Discovery Workshop** in International Joint Conference on Neural Networks, Orlando, Florida, USA, August 2007.

2006 • **Co-Organizer** of **Model Selection Game**, as a part of **Multi-level Inference Workshop Workshop** in Conference on Neural Information Processing Systems, Vancouver, BC, Canada, December 2006.

2006 • **Reviewer** for **Model Selection Workshop** for IEEE World Congress on Computational Intelligence, Vancouver, BC, Canada, July 2006.

2005-2006 • **Co-Organizer** of **Performance Prediction Challenge**, as a part of **Model Selection Workshop** in IEEE World Congress on Computational Intelligence, Vancouver, BC, Canada, July 2006.

2004 • **Reviewer** for **Feature Extraction: Foundations and Applications** book, Editors: Isabelle Guyon, Steve Gunn, Masoud Nikravesh, and Lofti Zadeh.

2004-Now • **Reviewer** for **Journal of Machine Learning**.

Awards

2005 • **Ranked 1st** in **NIPS Inferring Relevance From Eye Movements Challenge 2005**.

2003 • **Honored** and **Rewarded** as one of top young researchers in Eastern Azarbayjan Province from the **State Mayor**.

2003 • **Ranked 5th** in **NIPS Feature Selection Challenge 2003**.

2003 • **Ranked 3rd** in **BCI Competitions 2003**, in Class III.

Awards (continued)

1995 • **Winner** of the **Remarkable Student Scholarship** from Tehran Polytechnic (Amir Kabir University of Technology).

1995 • **Ranked 143th** in the **Nationwide B.S. Entrance Exam** in Mathematics and Physics Category between approximately 450,000 participants in Iran.

1995 • **Honored** as one of the **Best Graduated Students** of NODET High School of Tabriz from the **President of National Organization for Development of Exceptional Talents**.

Research Projects

Institute for Computer Graphics and Vision, Graz University of Technology:

2010-Now • **OUTLIER: Online and Unattended Learning for Implicit Event Recognition**.

2007-2009 • **Learning for Cognitive Vision**.

2006 • **EVIS: Autonomous Traffic Monitoring by Embedded Vision**.

2006 • **Video Tracking - Red Light Enforcement** for traffic surveillance and safety control.

2006 • **CLOP**, a machine learning package for MATLAB.
`http://www.ymer.org/amir/software/clop/`

Institute for Theoretical Computer Science, Graz University of Technology:

2005-2006 • **Biological Vision Modeling for Object Recognition and Categorization**.

Department of Electrical Eng., Sahand University of Technology:

2004 • **Biological Neural Networks (BNN) Toolbox for MATLAB**.
`http://www.ymer.org/amir/software/biological-neural-networks-toolbox/`

2002-2004 • **Spiking Neural Networks: Dynamical Systems Approach**.

Department of Biomedical Engineering, Tehran Polytechnic (Amir Kabir University of Technology):

2001-2002 • Member of **Mathematics Intelligence Research Group**, (Supervisor: Prof. Hashemi Golpayegani).

Teaching Experiences

Department of Electrical Eng., Sahand University of Technology:

Fall 2004 • Computational Intelligence, An Introduction to Biomedical Eng., Microprocessors and Lab., Technical Language.

Winter 2004 • Adaptive Control Systems, Computer Interface Circuits Design, Microprocessors and Lab.

Fall 2003 • Computational Intelligence, An Introduction to Biomedical Eng., Microprocessors and Lab., Technical Language.

Winter 2003 • Artificial Neural Networks, Computer Interface Circuits Design, Microprocessors.

Fall 2002 • Microprocessors, Technical Language, Electronics Lab.

Teaching Experiences (continued)

Department of Biomedical Engineering, Tehran Polytechnic (Amir Kabir University of Technology):

2001 • MATLAB Programming Training Courses.

Fall 2000 • Microprocessors Lab.

Fall 1999 • Microprocessors Teaching Assistant.

Job Experiences

2006-Now • **Research Assistant**, Institute for Computer Graphics and Vision, Graz University of Technology, Graz, Austria.

2005-2006 • **Research Assistant**, Institute for Theoretical Computer Science, Graz University of Technology, Graz, Austria.

2002-2004 • **Faculty Member** of Biomedical Eng. Group as a **Lecturer**, Sahand University of Technology, Tabriz, Iran.

Software and Harware Skills

- Extensive Experience in **C/C++, Python-Cython, and MATLAB Programming**.
- Extensive Experience in **Programming in Linux and Windows**.
- Extensive Experience in **80C51 and 80C196 Micro-Controllers and Digital Hardware Design**.
- Programming in **80x86 Assembly, Java, PHP**.

Language Skills

- **English:** Excellent in Speaking, Writing, and Reading.
- **German:** Beginner.
- **Turkish, Persian (Farsi):** Native.