

Ali Arya

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Research Interests

- Social User Interfaces, Virtual Worlds and Characters, Human-Computer Interaction, Graphics, Multimedia, Artificial Intelligence, Software and Multimedia Project Management

Teaching Interests

- Multimedia Systems, Graphics and Animation, Distributed Systems, Real-time Systems, Operating Systems, Software Engineering, Software Project Management, Software Programming (C/C++, C#, Java, etc), Computer Architecture and Digital Design

Professional Highlights

- Teaching in University and Industry, e-Learning tools such as SFU-SIAT CMS and WebCT
- Highly Ranked Teaching Reviews and “Terrific Teaching Assistant Award” from UBC CS
- Software Project Management and CMM-based Process Improvement Experience
- Multimedia/Graphics/Animation, Internet/Web, and Distributed Systems Development

Education

1999 – 2003

**Department of Electrical & Computer Engineering,
University of British Columbia, Vancouver, BC, Canada**

Ph.D., Computer Engineering

Thesis: Personalized Face Animation Framework for Interactive Multimedia Systems

- <http://www.csit.carleton.ca/~arya/ShowFace>
- Feature-based image transformations along with a 2D image-based method for creating MPEG-4 compatible and realistic facial actions
- XML-based face modeling language compatible with MPEG-4 standard, with support for spatio-temporal relations of facial actions, behavioural templates, and external event handling
- Component-based structure for development of animation applications, with a well-defined interface, independently usable components, and streaming capability
- Comprehensive set of evaluation criteria for face animation systems

1984 - 1989

Amir-Kabir University of Technology (Tehran Polytechnic), Tehran, Iran

B.Sc., Electrical Engineering

Final Project: Microprocessor-based Position Control of DC Motors

Professional Experience

From August 2006

School of Information Technology (<http://www.csit.carleton.ca>) &
Department of Systems and Computer Engineering (<http://www.sce.carleton.ca>)
Carleton University
Ottawa, ON, Canada

Assistant Professor

Member, Interactive Media Group (<http://img.csit.carleton.ca>)
Instructor, Design Studio 4 (<http://www.csit.carleton.ca/~arya/ds4.html>)
Coordinator, Senior Project (<http://www.csit.carleton.ca/~arya/sproj.html>)

From February 2005 to March 2006

iMediaTek Interactive Media Technologies, Inc.
Vancouver, BC, Canada

Project Manager, Chief Software Architect

Face Animation Engine for Interactive Applications and Games

From October 2005 to February 2006

CGA-Canada
Vancouver, BC, Canada

Project Manager

Evaluation of Online Education Systems (Blackboard, WebCT, Desire2Learn, Moodle)

September, 2003, to February, 2005

School of Interactive Arts and Technology,
Simon Fraser University, Surrey, BC, Canada

Post-doc Fellow, Research Associate

iFACE

Interactive Face Animation - Comprehensive Environment
Online Education System for Problem-based Learning
<http://iVizLab.sfu.ca/research/iface>

MusicFace

Music-driven Emotionally Expressive Faces (Affective Communication Remapping)
<http://iVizLab.sfu.ca/research/musicface>

Sessional Instructor

Computer Animation, IART-219/220/221, Spring 2004

Focusing on 3D Animation and also discussing general animation concepts
<http://www.RaminSoftworx.com/iart219>

January, 2002, to August 2003

**Department of Electrical & Computer Engineering,
University of British Columbia, Vancouver, BC, Canada**

Sessional Instructor

System Software Engineering, ELEC-314, Spring/Summer/Fall 2002 and Summer 2003

<http://www.RaminSoftworx.com/elec314>

Software Project Management, ELEC-443, Spring 2003

<http://www.RaminSoftworx.com/elec443>

Teaching Assistant

Computer Architecture, CPSC-218, Fall 2000 and Spring 2001

Operating Systems, ELEC-315, Fall 2000 and Fall 2001

System Software Engineering, ELEC-314, Spring and Summer 2001

February, 1998, to December, 1999

Honeywell-Measurex Devron Inc., North Vancouver, BC, Canada

Member of Software Engineering Process Group (SEPG)

Achieved SEI/CMM Level-2 and ISO 9001 Registration

Project Manager

Actuator Controller Software Development Project

Software Developer

Distributed Control System

February, 1996, to December, 1997

Fariné Co., Tehran, Iran

System Analyst, Technical Manager, and Software Programmer

Distributed Control System (UI, Network Communication, OLE for Process Control)

Windows NT Device Drivers for Analog/Digital I/O Cards

December, 1992, to February, 1996

Nezam Corp., Tehran, Iran

System Analyst, Software Developer, Hardware Specialist

Windows Application for 3-Dimensional Object Recognition in Gray Scale Images

Bilingual (Persian/English and Arabic/English) Localization of Link Inc. Terminals

PC Systems and Networks Installation, Maintenance, and Repair

August, 1991, to December, 1992

Tehran Cybernetic Arm Project, Tehran, Iran

Research Engineer

Microprocessor-based Systems for Signal Processing and Control of an Artificial Arm

Scientific Simulation Programs in Signal Processing and Control Systems

(Adaptive Control, Neural Networks, and Fuzzy Systems)

Publications (Books and Journals)

- Ali Arya and Steve DiPaola, "Multi-Space Behavioural Model for Face-based Affective Social Agents," *EURASIP Journal on Image and Video Processing*, Special Issue on Facial Image Processing, 2007. (<http://www.csit.carleton.ca/~arya/pubs/ivp.pdf>)
- Ali Arya, Lisa Jefferies, James T. Enns, and Steve DiPaola, "Facial Actions as Visual Cues for Personality," *Journal of Computer Animation and Virtual Worlds*, 17:371-382, John Wiley & Sons, Ltd., 2006. (<http://www.csit.carleton.ca/~arya/pubs/casa-06.pdf>).
- Ali Arya and Steve DiPaola, "Face Modeling and Animation Language for MPEG-4 XMT Framework," under revision for *IEEE Transactions on Multimedia*.
- Ali Arya and Babak Hamidzadeh, "Face Animation: A Case Study for Multimedia Modeling and Specification Languages," in *Multimedia Systems and Content-based Image Retrieval*, S. Deb editor. IGP, 2003. (<http://www.csit.carleton.ca/~arya/pubs/mscir.pdf>)
- Ali Arya and Babak Hamidzadeh, "Personalized Face Animation in ShowFace System," *Intl. Journal of Image and Graphics*, Special Issue on Virtual Reality and Virtual Environments, World Scientific, April 2003. (<http://www.csit.carleton.ca/~arya/pubs/vrve.pdf>)

Publications (Refereed Conferences)

- Steve DiPaola and Ali Arya, "Emotional Remapping of Music to Facial Animation," *ACM SIGGRAPH Video Game Symposium*, Boston, MA, USA, July 29-30, 2006. (<http://www.csit.carleton.ca/~arya/pubs/vgs-06.pdf>)
- Ali Arya, Lisa Jefferies, James T. Enns, and Steve DiPaola, "Facial Actions as Visual Cues for Personality," *19th Annual Conference on Computer Animation and Social Agents*, Geneva, 2006 (<http://www.csit.carleton.ca/~arya/pubs/casa-06.pdf>).
- Ali Arya, Steve DiPaola, Lisa Jefferies, and James T. Enns, "Socially communicative characters for interactive applications," *14th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG-2006)*, University of West Bohemia, Plzen, Czech Republic, January 30 - February 3, 2006. (<http://www.csit.carleton.ca/~arya/pubs/wscg.pdf>)
- Steve DiPaola, John Chan, and Ali Arya, "Simulating Face to Face Collaboration for Interactive Learning Systems," *E-Learn 2005*, Vancouver, 2005. (<http://www.csit.carleton.ca/~arya/pubs/elearn.pdf>)
- Steve DiPaola and Ali Arya, "Socially Expressive Communication Agents: A Face-Centric Approach," *European Conference on Electronic Imaging and the Visual Arts, EVA-2005*, Florence, Italy, March 17-18, 2005. (<http://www.csit.carleton.ca/~arya/pubs/eva-05.pdf>)
- Steve DiPaola and Ali Arya, "Affective Communication Remapping in MusicFace System," *European Conference on Electronic Imaging and the Visual Arts, EVA-2004*, London, England, July 26-31, 2004. (<http://www.csit.carleton.ca/~arya/pubs/eva.pdf>)
- Ali Arya and Steve DiPaola, "Face As A Multimedia Object," *Intl. Workshop on Image Analysis for Multimedia Interactive Services*, Lisbon, Portugal, April 21-23, 2004. (<http://www.csit.carleton.ca/~arya/pubs/wiamis.pdf>)

- Ali Arya and Babak Hamidzadeh, "ShowFace: A Framework for Personalized Face Animation," *IEEE/EURASIP First Intl. Workshop on Interactive Rich Media Content Production, RichMedia-2003*, Lausanne, Switzerland, October 16-17, 2003. (<http://www.csit.carleton.ca/~arya/pubs/rm.pdf>)
- Ali Arya and Babak Hamidzadeh, "FIX: Feature-based Image Transformations for Face Animation," *IEEE Intl. Conf. on Information Technology: Research and Education, ITRE-2003*, Newark, NJ, USA, August 10-13, 2003. (<http://www.csit.carleton.ca/~arya/pubs/itre.pdf>)
- Ali Arya and Babak Hamidzadeh, "An XML-Based Language for Face Modeling and Animation," *IASTED Intl. Conf. on Visualization, Imaging and Image Processing, VIIP-2002*, Malaga, Spain, 2002. (<http://www.csit.carleton.ca/~arya/pubs/viip.pdf>)
- Ali Arya and Babak Hamidzadeh, "ShowFace MPEG-4 Compatible Face Animation Framework," *IASTED Intl. Conf. on Computer Graphics and Imaging, CGIM-2002*, Kauai, Hawaii, 2002. (<http://www.csit.carleton.ca/~arya/pubs/cgim.pdf>)
- Ali Arya and Babak Hamidzadeh, "TalkingFace: Using Facial Feature Detection and Image Transformations for Visual Speech," *IEEE Intl. Conf. on Image Processing, ICIP-2001*, Thessaloniki, Greece, 2001. (<http://www.csit.carleton.ca/~arya/pubs/icip.pdf>)
- Ali Arya and Babak Hamidzadeh, "A Personalized Talking/Moving Head Presentation Using Image-based Transformations," *Intl. Conf. on Augmented Virtual Environments and 3D Imaging*, Mykonos, Greece, 2001. (<http://www.csit.carleton.ca/~arya/pubs/icav3d.pdf>)
- Ali Arya and Kambiz Badie, "A Connectionist Approach to Reorganization of Knowledge Structures in Fuzzy Systems," *IEEE Intl. Conf. on Fuzzy Systems*, Barcelona, Spain, 1997. (<http://www.csit.carleton.ca/~arya/pubs/fuzzy.pdf>)
- Ali Arya, Ehsan Kabir, and Kambiz Badie "3D Object Recognition using Qualitative Modeling and Segment Vicinity," *Second Conf. of Iranian Computer Society*, Tehran, Iran, 1997.
- Ali Arya and Kambiz Badie "A Step Toward a Comprehensive Framework for Adaptive Fuzzy Modeling," *Iranian Conf. on Intelligent and Cognitive Systems*, sponsored by IEE, Tehran, Iran, 1996.
- Ali Arya, Farhad Khazanedari, and Kambiz Badie "An Adaptive Fuzzy Controller for the NC Machine of a CAD/CAM System," *First Iranian Conf. on Electrical Engineering*, Tehran, Iran, 1993.

Professional Activities and Services

- Member, Technical Program Committee, CyberGames Conference, 2007
- Senior Member, IEEE and IEEE Computer Society, Member Since 1995
- Councilor, UBC Student Society (AMS and GSS), Academic Year 2002-3
- Volunteer, in many professional conferences including IEEE ICIP-2001
- Attendee, Instructional Skills Workshop, University of British Columbia, 2003