



# Arash Abad Pour

## Education

- 1992–1996 **High school**, *Exceptional Talents High School*, Karaj, Iran.  
Diploma in Physics and Mathematics
- 1996–2003 **Bachelor**, *Sharif University of Technology*, Tehran, Iran.  
Electrical Engineering Department, Control Group
- 2003–2005 **Master of Science**, *Sharif University of Technology*, Tehran, Iran.  
Mathematics Science Department, Computer Science Group (Scientific Computation)
- 2005–2009 **Ph.D. (Defended)**, *University of Manitoba*, Winnipeg, Manitoba, Canada.  
Electrical and Computer Engineering Department

## Passed Courses

- Queueing Performance Analysis, Matrix Analytical Methods in Queueing.
- General Mathematics, Engineering Mathematics, Differential Equations, Statistics and Probability Theory, Numerical Analysis, Advanced Numerical Analysis, Graph Theory.
- Computer Programming (Pascal), Advanced Computer Programming (C++), Data Structure and Algorithms, Advanced Mathematical Programming.
- Signal Processing, Advanced Digital Image Processing, Digital Video Processing.
- Logic Circuits, Machine Language, Microprocessors.
- Neural Networks.
- Fuzzy Sets.
- Electrical Circuits, Electronics, Industrial Electronics, Electrical Machines, Control Systems, Modern Control, Industrial Control, Digital Control.

## Research interests

- Image Processing, Machine Vision.
- Vector-based Processing of Color Images.
- Optimization, Fuzzy Optimization, Fuzzy Clustering.
- Analysis of Social Networks & Blogs.

## Language

### **Persian (Farsi).**

First Language

### **English.**

Fluent in Reading, Listening, Speaking, and Writing (TOEFL CBT: 273/300)

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## Computer Skills

### **MATLAB.**

Object–Oriented Programming and GUI Design.

### **Typesetting in L<sup>A</sup>T<sub>E</sub>X.**

### **Programming.**

C++, Borland Delphi, Microsoft Visual C++, and Borland C++ Builder.

### **Web–Programming.**

php and MySQL.

### **Computer Graphics.**

Windows API and OpenGL.

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## Honors & Awards

- 1995 **Silver Medal**, *Iranian National Mathematics Olympiad.*
- 1995 **Silver Medal**, *Iranian National Computers Olympiad.*
- 1996 **234th Place**, *Iranian National University Entrance Examination.*
- 2002 **5th Place**, *National M.Sc. Examination for Computer Engineering.*  
Artificial Intelligence
- 2002 **11th Place**, *National M.Sc. Examination for Computer Sciences.*
- 2002 **4th Place**, *7–th National Scientific Olympiad for Masters Students.*
- 2004 **Paper Praised**, *9th Annual CSI Computer Conference (CSICC2004)*, Tehran, Iran.  
A New Parametric Linear Adaptive Color Space and its PCA–based Implementation
- 2005 **Paper Praised**, *The Third Conference on Machine Vision, Image Processing & Applications, (MVIP2005)*, Tehran, Iran.  
Novel Method for Unsupervised Fuzzy Change Detection in Multispectral Remotely Sensed Images
- 2005 **Scholarship**, *Iranian Telecommunications Research Center (ITRC).*  
\$1,000
- 2006 **Finalist Candidate**, *University of Manitoba Graduate Fellowship (UMGF).*  
\$16,000
- 2005–2006 **Scholarship**, *Telecommunication Research Labs (TRLabs), Winnipeg.*  
\$12,000
- 2006–2007 **Scholarship**, *University of Manitoba International Graduate Student Scholarship (IGSS).*  
\$5,000
- 2006–2007 **Fellowship**, *Edward R. Toporeck Graduate Fellowship in Engineering.*  
\$4,288
- 2006–2007 **Scholarship**, *Telecommunication Research Labs (TRLabs), Winnipeg.*  
\$12,000
- 2007–2008 **Scholarship**, *Telecommunication Research Labs (TRLabs), Winnipeg.*  
\$24,000
- 2008–2009 **Scholarship**, *Telecommunication Research Labs (TRLabs), Winnipeg.*  
\$24,000

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## Community Activities

- 1998 **Executive Experience**, *Head of the publication committee of the first National Student Conference on Electrical Engineering.*
- 2002–2005 **Expert Service**, *Expert for allexperts.com.*  
Delphi and Computer Sciences Branches
- 2004–Current **Blogging**, *Bilingual (Persian/English) blogging at kamangir.net.*  
Over 4,000 page-views a day
- 2008 **Articles**, *Comments published in The Manitoban, The University of Manitoba Students' Newspaper.*
- 2006–2008 **Interviews**, *Harvard Law School's Global Voices Online, nana.co.il, ABC Radio National, Radio Zamaneh and other media sources.*  
On the topic of blogging
- 2007 **Translation Services**, *For Reporters without Frontiers (RSF) as English–Persian translator.*
- 2007–Current **Volunteer Work**, *Observer for France24 TV Station.*

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## Experience

### Research Assistant (1998–2007)

- 1998–1999 **Sharif Human Motion Analyzer Project**, *F. Farahmand (Ph.D.) and R. Narimani (M.Sc.), Biomechanics Laboratory, Sharif University of Technology, Tehran, Iran.*
- 1999–2000 **Hardcopy Drawing to Vector Form Conversion**, *A.Amirfazli (Ph.D.), Sharif University of Technology, Tehran, Iran.*
- 2000 **Sharif Pedobarography**, *F. Farahmand (Ph.D.) and R. Narimani (M.Sc.), Biomechanics Laboratory, Sharif University of Technology, Tehran, Iran.*
- 2000–2001 **3D Human Organ Reconstruction**, *F. Farahmand (Ph.D.) and R. Narimani (M.Sc.), Biomechanics Laboratory, Sharif University of Technology, Tehran, Iran.*
- 2000–2001 **Human Forced Vibration Analysis**, *M. HoviatTalab (M.Sc.) and R. Narimani (M.Sc.), Biomechanics Laboratory, Sharif University of Technology, Tehran, Iran.*
- 2000–2001 **3D Surface Reconstruction**, *Joint Project of Sharif University of Technology and SAPCO, Tehran, Iran.*
- 2000–2001 **3D Motion Analyzer**, *F. Farahmand (Ph.D.) and R. Narimani (M.Sc.), Biomechanics Laboratory, Sharif University of Technology, Tehran, Iran.*
- 2003–2005 **Color Image Processing**, *S. Kasaei (Ph.D.), Image Processing Research Laboratory, Sharif University of Technology, Tehran, Iran.*
- 2004–2005 **Earthquake Damage Detection using Remotely Sensed Images**, *S. Kasaei (Ph.D.), M. Nakamura (Ph.D.), and Y. Kosugi (Ph.D.), Image Processing Research Laboratory, Sharif University of Technology & Tokyo University of Technology, Tehran, Iran.*
- 2004–2005 **Fuzzy Clustering**, *S. Bagheri S. (Ph.D.), Sharif University of Technology, Tehran, Iran.*
- 2005 **Content-Based Pornography Filtering**, *S. Kasaei (Ph.D.) and A. Talebpour (Ph.D.), Image Processing Research Laboratory, Sharif University of Technology & Tebian Institute, Tehran, Iran.*

2005–2009 **Caching and Planning in Video on Demand**, A. S. Alpha (Ph.D.) and Jeff Diamond (Ph.D.), Telecommunications Research Laboratories (TRLabs), Winnipeg, Manitoba, Canada.

2005–2009 **Capacity Optimization in CDMA system**, A. S. Alpha (Ph.D.), University of Manitoba, Winnipeg, Manitoba, Canada.

### Teacher's Assistant (2004–2007)

2004 **Advanced Digital Image Processing**, Dr. Shohreh Kasaei, Sharif University of Technology, Tehran, Iran.  
Graduate Course

2005 **Advanced Digital Image Processing**, Dr. Shohreh Kasaei, Sharif University of Technology, Tehran, Iran.  
Graduate Course

2006 **Digital Control**, Dr. Wai-Keung Fung, University of Manitoba, Winnipeg, Canada.  
Undergraduate Course

2007 **Communication Systems**, Dr. Pradeepa Yahampath, University of Manitoba, Winnipeg, Canada.  
Undergraduate Course

2007 **Digital Control**, Dr. Wai-Keung Fung, University of Manitoba, Winnipeg, Canada.  
Undergraduate Course

### Instructor (2005)

2005 **Digital Image Processing**, Computer Engineering Faculty, Shariati University, Tehran, Iran.  
Undergraduate Course

### Professional Work (2001–2010)

2001–2004 **Process control engineer**, Karband Eng. Co., Tehran, Iran.

2009–current **Researcher**, Epson Canada Limited, Toronto, ON, Canada.

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## Publications

### Refereed Journal Papers

**Arash Abadpour** and S. Kasaei. "A Novel Color Image Compression Method using Eigenimages", Journal of Iranian Association of Electrical and Electronics Engineers - Volume 5, No.2, Fall and Winter 2008, Pages 45–53.

**Arash Abadpour**, Attahiru Sule Alfa, "Approximate algorithms for maximizing the capacity of the reverse link in multiple-class CDMA systems", in Operations Research and Cyber-Infrastructure, M. J. Saltzman, J. W. Chinneck, and B. Kristjansson, Eds. Springer, 2008, Pages: 237–252

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, "Approximation Algorithms For Maximizing The Information-Theoretic Sum Capacity of Reverse Link CDMA Systems", AEU - International Journal of Electronics and Communications, Volume 63, Issue 2, 4 February 2009, Pages 108–115.

**Arash Abadpour**, Attahiru Sule Alfa, and Jeff Diamond, “*Video-on-Demand Network Design And Maintenance Using Fuzzy Optimization*”, IEEE Transactions on Systems, Man, and Cybernetics, Part B, April 2008, Volume 38, Issue 2, Pages: 404–420.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*Closed Form Solution for Maximizing the Sum Capacity of Reverse-Link CDMA System with Rate Constraints*”, IEEE Transactions on Wireless Communications, Volume 7, Issue 4, April 2008, Pages:1179–1183.

**Arash Abadpour** and S. Kasaei. “*Color PCA Eigenimages and Their Application to Compression and Watermarking*”, IEE Image & Vision Computing, Volume 26, Issue 7, July 2008, Pages 878–890.

**Arash Abadpour** and S. Kasaei, “*Principal Color and Its Application to Color Image Segmentation*”, Scientia Iranica, To Appear, 2008.

**Arash Abadpour** and S. Kasaei, “*An Efficient PCA-based Color Transfer*”, Visual Communication & Image Representation, February 2007, Volume 18, Number 1, Pages, 15–34.

**Arash Abadpour** and S. Kasaei. “*Unsupervised, Fast and Efficient Color Image Copy Protection*”, IEE Proceedings Communications, October 2005, Volume 152, Issue 5, Pages 605–616.

**Arash Abadpour**, S. Kasaei, S. Mohsen Amiri, “*Fast Registration of Remotely-Sensed Images for Earthquake Damage Estimation*”, EURASIP Journal on Applied Signal Processing, Volume 2006 (2006), Article ID 76462.

### Refereed Conference Papers

**Arash Abadpour** and Attahiru Sule Alfa, “*Approximate Algorithms for Maximizing the Capacity of the Reverse Link in Multiple-Class CDMA System*”, Accepted in 11th INFORMS Computing Society Conference, Charleston 2009 (ICS'09).

**Arash Abadpour**, Attahiru Sule Alfa, and Jeff Diamond, “*Fuzzy Design of A Video-on-Demand Network*”, Accepted in 7th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2007).

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*A More Realistic Approach to Information-Theoretic Sum Capacity of Reverse Link CDMA Systems in a Single Cell*”, In the IEEE International Conference on Communications (ICC 2007), Glasgow, Scotland.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*Capacity-Share Controlled Information-Theoretic Sum Capacity of Reverse Link Single-Cell CDMA Systems*”, In the 2007 IEEE 65th Vehicular Technology Conference, (VTC2007 Spring), Dublin, Ireland.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*Information-Theoretic Sum Capacity of Reverse Link CDMA Systems in A Single Cell, An Optimization Perspective*”, In the 8th Annual Conference for Canadian Queueing Theorists and Practitioners, CanQueue 2006, Banff, Calgary, Canada.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*Closed Form Solution for QoS-Constrained Information-Theoretic Sum Capacity of Reverse Link CDMA Systems*”, In the 2nd ACM Q2SWinet 2006, Torremolinos, Malaga, Spain.

**Arash Abadpour** and S. Kasaei, “*Multi.Layer Representation of Grayscale Images and Its Generalization*”, In the 14th Iranian Conference on Electrical Engineering (ICEE2006), Iran.

**Arash Abadpour** and S. Kasaei, “*Deliberate distortion of color image and video resources for copyright protection*”, In the 5th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2005), Athens, Greece, pages 369–374, 2005.

**Arash Abadpour** and S. Kasaei, “*Comprehensive Evaluation of the Pixel-Based Skin Detection Approach for Pornography Filtering in the Internet Resources*”, In the International Symposium on Telecommunications, (IST 2005), Pages 829–834, Shiraz, Iran, September 2005.

**Arash Abadpour** and S. Kasaei, “*Wavelet-PCA-Based Compression Method for Color Images (Invited Paper)*”, In the First Symposium on Wavelet and its Applications, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*An Unsupervised Fast Color Transfer Method*”, In the 13th Iranian Conference on Electrical Engineering (ICEE2005), Zanjan, Iran, 2005.

**Arash Abadpour** and S. Kasaei, “*A New Fast Robust Color Image Watermarking Method using FPCA Clustering*”, In the 10th Annual CSI Computer Conference (CS-ICC2005), Pages 246–251, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*Fast Registration of Remotely Sensed Images*”, In the 10th Annual CSI Computer Conference (CSICC2005), Pages 61–67, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*New Tree Decomposition Method for Color Images*”. In the 10th Annual CSI Computer Conference (CSICC2005), Pages 48–52, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*A New Fast Fuzzy Method for Query Region Extraction from Color Images*”. In the 10th Annual CSI Computer Conference (CSICC2005), Pages 53–59, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*Novel Color Image Compression Method using Eigen-images*”, In the third Conference on Machine Vision, Image Processing & Applications, (MVIP2005), volume 1, Pages 340–346, Tehran, Iran, February 2005.

**Arash Abadpour** and S. Kasaei, “*Novel Method for Unsupervised Fuzzy Change Detection in Multispectral Remotely Sensed Images*”, In the third Conference on Machine Vision, Image Processing & Applications, (MVIP2005), Volume 1, Pages 270–277, Tehran, Iran, February 2005.

**Arash Abadpour**, S. Bagheri S, and S. Kasaei, “*A New Method for Agent-based Color Clustering*”, In the World Congress on Fuzzy Logic, Soft Computing and Computational Intelligence Theories and Applications (IFSFA2005), Beijing, China, July 2005.

**Arash Abadpour** and S. Kasaei, “*A New FPCA-Based Fast Segmentation Method for Color Images*”, In the 4th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2004), Pages 72–75, Rome, Italy, December 2004.

**Arash Abadpour** and S. Kasaei, “*A Fast and Efficient Fuzzy Color Transfer Method*”, In the 4th IEEE International Symposium on Signal Processing and Information Technology (ISSPIT 2004), Pages 491–494, Rome, Italy, December 2004.

R. Narimani, M. Hoviattalab, **Arash Abadpour**, and A. Yadollahi . “*Vibration Measurement And Analysis Using Image Processing Method*”, In the proceedings of the 7th Biennial Conference on Engineering Systems Design and Analysis, (ESDA), Manchester, UK, July 19–22, 2004.

M. Hoviattalab, R. Narimani, A. Yadollahi, and **Arash Abadpour**, “*New Image-based System for Vibration Measurement, Specially Developed for Forced Human Vibration Analysis*”, In the ASME International Mechanical Engineering Congress and RD&D Expo, (IMECE2004), Anaheim, California, November 13–19, 2004.

**Arash Abadpour** and S. Kasaei, “*A New PCA-Based Robust Color Image Watermarking Method*”, In the 2nd IEEE Conference on Advancing Technology in the GCC: Challenges, and Solutions (IEEE–GCC 2004), Pages 326–331, Manama, Kingdom of Bahrain, November 2004.

**Arash Abadpour** and S. Kasaei, “*A New Principle Component Analysis Based Coloring Method*”, In the 12th Iranian Conference on Electrical Engineering (ICEE2004), Mashhad, Iran, May 2004.

**Arash Abadpour** and S. Kasaei, “*New PCA-based Compression Method for Natural Color Images*”. In International Workshop on Computer Vision, IPM, Tehran, Iran, April 2004.

**Arash Abadpour** and S. Kasaei, “*Performance Analysis of Three Likelihood Measures for Color Image Processing*”. In International Workshop on Computer Vision, IPM, Tehran, Iran, April 2004.

**Arash Abadpour** and S. Kasaei, “*A New Parametric Linear Adaptive Color Space and its PCA-based Implementation*”. In The 9th Annual CSI Computer Conference (CSICC2004), Volume 2, Pages 125-132, Tehran, Iran, February 2004.

F. Malekipour, **Arash Abadpour**, F. Farahmand, R. Narimany, “*Study of Effect of Number and Location of the Control Points on the Accuracy of 3D Reconstruction of Coordinates in Gait Analysis Systems*”, In the 11th Iranian Annual Biomechanics Conference, Tehran, Iran, February, 2003 (Persian).

F. Malekipour, **Arash Abadpour**, F. Farahmand, R. Narimany, “*Performance Analysis of the Direct Linear Transform for Marker Reconstruction in Motion Analysis Applications*”, In the First Seminar on Biomechanics and Human Motion Analysis, Imam Hospital, Tehran, Iran, November 2002 (Persian).

**Arash Abadpour**, A. Yadollahi, “*Developing a Software Platform to Use Anaglyph Glasses for 3D Visualization*”, National Computer Conference (NCC2003), Mashhad, Iran, 2003 (Persian).

R. Narimani, F. Farahmand, G. Bashiri, **Arash Abadpour**, “*Developing a system for cinematic measurement of body movements by imaging*”, In the 5th Iranian Congress of Medical Physics (ICMP), Tehran, Iran, 2002, pp. 99-100 (Persian).

### Dissertations

M.Sc. Thesis: “*Color Image Processing using Principal Component Analysis*”, Mathematics Science Department, Sharif University of Technology, Supervised by S. Kasaei (Ph.D.) and A. Daneshgar (Ph.D.), 2004–2005.

B.Sc. Thesis: “*Image Processing Integrated Debugging Environment*”, Electrical Engineering Department, Sharif University of Technology, Supervised by B. Vosoughi Vahdat (Ph.D.), 2001–2002.

## Technical Reports

**Arash Abadpour**, Attahiru Sule Alfa, and Jeff Diamond, “*Video Streaming using Overlay Networks*”, Technical Report, Telecommunication Research Laboratories (TRLabs), 2008.

**Arash Abadpour**, Attahiru Sule Alfa, and Jeff Diamond, “*Video-on-Demand Network Design And Maintenance Using Fuzzy Optimization*”, Technical Report, Telecommunication Research Laboratories (TRLabs), 2007.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*Capacity-Share Controlled Information-Theoretic Sum Capacity of Reverse Link Single-Cell CDMA Systems*”, Technical Report, University of Manitoba, 2006.

**Arash Abadpour**, Attahiru Sule Alfa, and Anthony C.K. Soong, “*A More Realistic Approach to Information-Theoretic Sum Capacity of Reverse Link CDMA Systems in a Single Cell*”, Technical Report, University of Manitoba, 2006.

A. Amirfazli, K. Khoshi, A. Yadollahi, **Arash Abadpour**, “*Converting Industrial Drawings Type A to Type E from Non-Vector Form to Vector Form II*”, Research Proceedings, Sharif University of Technology, 2000–2001, pp. 31–39.

R. Narimani, G. Bashiri, **Arash Abadpour**, “*Gait Analysis by Image Processing*”, Research Proceedings, Sharif University of Technology, 1999–2000, pp. 187–195.

A. Amirfazli, K. Khoshi, A. Yadollahi, **Arash Abadpour**, “*Converting Industrial Drawings Type A to Type E from Non-Vector Form to Vector Form I*”, Research Proceedings, Sharif University of Technology, 1999–2000, pp. 25–36.

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## References

### Prof. Attahiru S. Alfa

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### Dr. Jeff Diamond

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Phone +1 204 488 5633  
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### Dr. Shohreh Kasaei

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