



# Arash Abad Pour

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## 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.**, *University of Manitoba*, Winnipeg, Manitoba, Canada.  
Electrical and Computer Engineering Department

## Research interests

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

## Languages

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

First Language

### **English.**

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

## 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
- 2006–Current **Interviews**, *Harvard Law School’s Global Voices Online, nana.co.il, ABC Radio National, Radio Zamaneh, BBC, Voice of America, and other media sources.*  
On the topic of blogging

- 2007 **Translation Services**, *For Reporters without Frontiers (RSF) as English–Persian translator.*
- 2007–2008 **Observer for France24 TV Station.**
- 2008–Current **Articles**, *Comments published in The Manitoban, Persian BBC Website, DW-World Website.*
- 2010–Current **Workshops and Training Sessions**, *Weblog and Citizen Journalism Workshop, March 2010, University of Toronto.*

## 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.

## 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. Hoviat Talab (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 (IFSAC2005), 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

Ph.D. Thesis: “*QoS-Constrained Information Theoretic Capacity Maximization in CDMA Systems*”, Electrical and Computer Engineering Department, University of Manitoba, Winnipeg, Manitoba, Canada, Supervised by Prof. Attahiru S. Alfa (Ph.D.), 2005–2009.

M.Sc. Thesis: “*Color Image Processing using Principal Component Analysis*”, Mathematics Science Department, Sharif University of Technology, Tehran, Iran, 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, Tehran, Iran, 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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### Dr. Shohreh Kasaei

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