

CV

PERSONAL INFORMATION:

- **First Name:** Mohsen
- **Surname:** Akbari Shandiz
- **Nationality:** Iranian
- **Date of Birth:** March 29th, 1984
- **Gender:** Male

Address:

Biomechanics Lab:

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Robotic Surgery Lab:

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Education:

- **Sharif University of Technology (SUT)**
Tehran, Iran

- **M.Sc.** in Mechanical Engineering (Biomechanics) (September 2006_June2009) Total
GPA: 17.35 out of 20 (3.47 out of 4.0)

Thesis: "*Dynamic simulation of the biped normal and amputee human gait.*"

Supervisor: Prof. Farahmand & Prof. Zohoor

- **Islamic Azad University, Central Tehran Branch (IAUCTB)**
Tehran, Iran

- **B.Sc.** in Mechanical Engineering (September 2002 –June 2006)
GPA: 16.13 out of 20 (3.2 out of 4.0)
Last two years GPA: 17 out of 20

Thesis: "*Analysis of the different methods of defect prediction in Die Cast.*"

Supervisor: Dr. Mohamadiun

Publication:

- **M. Akbari Shandiz**, F. Farahmand, and H. Zohoor, "*Dynamic simulation of transfemoral amputees locomotion with different types of prosthetic knee controllers.*", Journal of Engineering in Medicine, 2009 (Under review).
- **M. Akbari Shandiz**, F. Farahmand, and H. Zohoor, "*Dynamic simulation of the biped normal and amputee human gait.*", 12th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2009), pp 1113-1120, 9-11 September 2009 - Istanbul, Turkey.
- **M. Akbari Shandiz**, F. Farahmand, and H. Zohoor, "*Dynamic simulation of human gait with 7-link model.*", 17th Int. Conf. on Mech. Eng., ISME 2009 (Published paper-In Farsi).

Patent:

- **M. Akbari Shandiz, A. Mirbagheri, F. Farahmand** "*Minimally invasive surgical robot with adjustable spatial pivot point*". (In progress)

Abstract: One of the main problems of minimally invasive robotic surgery is the injury caused to the incision point of abdominal wall via undesirable moments applied by the mechanism with constant pivot point. The present invention provides a surgical robot with the ability of adjusting its spatial pivot point vertically, to eliminate those undesirable moments.

Research Interest:

- Biomechanics
- Robotics
- System Dynamics & Controls
- Haptics

Detailed Research Interest:

- Musculoskeletal biomechanics, Simulation of human movement, Mechanics of the human, Joint biomechanics, Spine biomechanics, Application of optimization to biomechanics, Biomimics.
- Neural control of human movement, Computational neuroscience, Control of locomotion.
- Medical implant design and testing, Artificial prosthesis & orthosis.
- Sports biomechanics, Rehabilitation, Orthopedic.
- Robotic Surgery, Application of Robotics in minimally invasive surgery, Application of Haptic systems in robotic surgery, Haptic sensors, Rehabilitation robotics.
- Micro surgery tools, Design and fabrication of MEMS/Nano systems and devices.
- Computer integrated surgery (CIS), System and medical robotics.
- Robotics, Mobile robots and Humanoids, Biped locomotion, Manipulators, biologically inspired robotics, Biomicrobotics, NanoRobotics.

Research Experience:

Research Center for Science and Technology in Medicine (RCSTIM)

Tehran, Iran

- Advisor: Prof. Farahmand, Mirbagheri "*Research assistant in robotic surgery Lab.*" (Present)
- Advisor: Prof. Farahmand, Mirbagheri "*Design, Analysis, Fabrication of a Haptic endoscopic robot for splenectomy*" (Present)
- Advisor: Prof. Farahmand, "*Development of energy-optimal paraplegic gait pattern using a 3D biped model with reciprocating-gait orthosis (RGO)*" (Fall, 2009)

- Advisor: Prof. Farahmand, Mirbagheri "*Fabrication of a robotic assistant for laparoscopic surgery*" (Summer, 2009)

Sharif University of Technology (SUT), Biomechanical Lab

Tehran, Iran

- Advisor: Prof. Farahmand, "Research assistant in biomechanical projects and scientific researches." (2006-2009)
- Advisor: M. Parnianpour, "*Design of central pattern generator (CPG) to control a 7-Link planar mechanism.*" (Present)
- Advisor: Prof. Farahmand, "*Dynamic simulation & optimization of human's balancing locomotion on the accelerated platform.*" (Summer, 2008)

Industrial Training Course:

- "Machines Tool Workshop", IAUCTB, (Fall, 2003)
- "Welding Workshop", IAUCTB, (Spring, 2004)
- "CNC Programming Workshop", IAUCTB, (Spring, 2005)
- "Casting Workshop ", IAUCTB, (Spring, 2006)
- "Jig & fixture Design Workshop", IAUCTB, (Spring, 2006)
- "Press Die Design Workshop", IAUCTB, (Spring, 2006)
- "Hydraulics and Pneumatics Workshop", IAUCTB, (Spring, 2006)
- "Applied Electronic workshop", SUT, (Fall, 2006)

Industrial Experiences:

- **Internship:** "Introduction to engineering design sequences, Non destructive tests, CNC programming." Sadid Pipe Co., Tehran, Iran (Summer 2005)

Honors & Awards:

- **Ranked 1st** in Robotic Surgery League, RoboCup Khwarizmi Competitions, as a member of team ROBOLENS, Tehran, Iran, 2009
- Member of 12th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR 2009), Istanbul, Turkey, 2009
- Member of 17th. Annual (International) Conference on Mechanical Engineering-ISME 2009, University of Tehran, Iran, 2009
- Member of executive committee in "13th Iranian Conference on Biomedical Engineering", Sharif University of Technology, Tehran, Iran, 2008

Computer Skills:

- **Programming:** Familiar with C/C++, FORTRAN
- **Mathematical Programming:** MATLAB, Maple
- **Mechanical:** Solidworks, ABAQUS
- **Dynamical Simulation:** Working Model

Languages:

- **Native:** Farsi,
- **Fluent:** English

TOEFL (IBT) Score: 97

References:

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