

UTKU ÇULHA

Institute of Robotics and Intelligent Systems
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Research Area

Biologically inspired dexterous robots and mechanisms; legged robots and dynamic locomotion, varying compliance mechanisms to aid locomotion. Embedded systems and architecture; motor and actuator control.

Education

Sep 2009 – Jan 2012	M.Sc. Bilkent University, Computer Engineering Department, Ankara Advisor: Asst. Prof. Uluç Saranlı Thesis: “Actuated Back Spine Architecture for Locomotion in Quadruped Robots”
Aug 2005 – May 2009	B.Sc. Bilkent University, Computer Engineering Department, Ankara CGPA: 3.14 / 4.00
Sep 2002 – Jun 2005	Gazi Anatolian High School, Ankara CGPA: 4.95 / 5.00
Sep 1994 – Jun 2002	TED Ankara College, Ankara

Research Experience

Bilkent University Computer Engineering Department: Research Assistant (2009 -2012): Working on developing robust control, efficient dynamics and compliant mechanisms of running legged robots. Developing a bio-inspired quadruped robot with an actuated spinal joint, as in fast running land mammals like cheetahs, to increase locomotion performance.

Carnegie Mellon University NanoRobotics Lab: Visiting Scholar (Sept. 2010 – Jan. 2011): Worked with Assoc. Prof. Metin Sitti on a novel bio-inspired amphibious running robot. Developed a passive compliant foot structure including magnets, dampers and springs along with a novel locomotion gait control for the robot to adapt locomotion transition between land and water while running with high speed.

Bilkent Dexterous Robotics and Locomotion Group: Group Member (2006 - 2012): Worked on developing and programming of the embedded system architecture and real time operating system mounted on the TUBITAK granted and sponsored project of hexapod robot “SensorHex” (2009 - 2011). Developed and built a 2-wheeled dynamically balancing robot associated with “Embedded Systems” course project (2008-2009). Worked on dynamics and kinematic simulation of SLIP model (2006 – 2008).

Publications

U. Çulha and U. Saranlı, “*Quadrupedal Bounding with an Actuated Spinal Joint*”, *IEEE International Conference on Robotics and Automation*, May 2011, Shanghai, China.

Teaching Experience

Sep 2011 – Jan 2012	Bilkent University, Computer Engineering Department <i>CS 114 – Introduction to Programming for Engineers</i> , Teaching Assistant
Jan 2011 – May 2011 Jan 2010 – May 2010	Bilkent University, Computer Engineering Department <i>CS 431 – Embedded Systems</i> , Teaching Assistant
Sep 2009 – Jan 2010	Bilkent University, Computer Engineering Department <i>CS 102 – Algorithms and Java</i> , Teaching Assistant

Professional Experience

May 2009 – Jan 2010

Prolog Ltd. - Ankara
Research / Development Sector

Co-founder of the company. Has developed an embedded device for monitoring and recording body sounds captured from a standard stethoscope and supervised the group working on this project.

Sep 2008 – Jun 2009

Havelsan A.Ş. - Ankara
Avionic Systems and Air Defense Sector

Has worked as a part-time computer engineer and worked on 3 different embedded systems and software projects sponsored by the Turkish Armed Forces.

Patents

Utku Çulha, Vehbi Çelme “*Wireless Communication Based Embedded Device for Stethoscope Monitoring and Recording and Supporting Analysis Software*” Turkish Patent No: TR 2010 01603 A2, Sep 2011.

Programming Skills

Programming Languages:

C, C++, MATLAB, Java, JavaScript, Assembly, Visual DSP, Verilog, SQL, PHP, HTML

Operating Systems:

Linux / UNIX, Microsoft Windows, QNX RTOS

Honors and Awards

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| 2009 – 2012 | Bilkent University, Computer Science Department – Full Scholarship, Grad School |
| 2009 – 2011 | TUBITAK R&D Project Grant No: 109E032 |
| 2006 – 2007 | Bilkent University, Computer Science Department – Honor Degree |
| 2005 – 2006 | Bilkent University, Computer Science Department – High Honor Degree |

Outreach to Community Organizations and Societies

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| 2004 - | Turkish Red Crescent, Youth Volunteer Leader and Organization Manager |
| 2004 - | Ankara Jazz Society, Active Member |
| 2008 – 2009 | Bilkent University Robotics Society, Founder and President |
| 2007 – 2009 | Bilkent University Music Society, President |
| 2005 – 2007 | Bilkent University IAESTE Society, Founder and Vice President |

Personal Information

Date and Place of Birth: 01.01.1988, İstanbul - Türkiye

Known Foreign Languages: English (Professional), German (Intermediate)

Hobbies: Plays lead guitar in a local professional music band. Swimming, travelling, Turkish and World history.