



Prof. Dr. Behnam Rahnama

Founder and CEO, Medis Holding

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Short Vita –Behnam Rahnama received PhD (2010) and MSc (2005) in Computer Engineering at Eastern Mediterranean University and his BSc degree - in Computer Software Engineering - (2003) at Shiraz Azad University of Iran. He has published various papers, book chapters and couple of books in the fields of Intelligent Systems, Robotics, Semantic Web Services, Data Structure, and Security (more than 55 publications). His research interests include Distributed Collaborative Autonomous Semantic Robotic Systems, Semantic Reasoning, and Semantic Intelligence, Efficient Hierarchical Schemas for RDBMS, Security and Cryptography, Embedded OS/Hardware for Robotics and partially solving and parallelization of ultra dense linear matrices on GPGPU based supercomputers. He is reviewer of many international journals and refereed conferences in addition to co-chairing COMPSAC-MEDIS, SINCONF, IJRCS, and biannual EEECS symposiums. Within last recent years, he has been actively working on startup companies, running and participating incubation centers in both US and Iran. Working as a Senior Software Engineer at ScaleDB Inc. in US and Founding Medis Holding as the foremost Innovation Center in Iran, in addition to receiving full professorship degree in less than 7 years after PhD, and designing the planet most powerful exascale supercomputer with more than 2 exaflops of computational power are some of major examples of such enthusiasm.

Education

Sep 2005 – Feb 2010	Ph.D., Computer Engineering, Eastern Mediterranean University (EMU); Thesis: Extended Open World Assumption as Core for Reasoning in Collaborative Problem Solving on Multiple Autonomous Semantic Robots; under supervision of Prof. Dr. Atilla Elçi http://cmpe.emu.edu.tr/aelci/
Feb 2004 – July 2005	MSc., Computer Engineering, Eastern Mediterranean University; Thesis: A Novel Approach to Represent Hierarchical Data in Relational Database Systems; under supervision of Prof. Dr. Alexander Chefranov http://cmpe.emu.edu.tr/chefranov/
Sep 1999 – Feb 2003	BSc., Computer Engineering (Software), Shiraz Azad University; Thesis: Design and Implementation of Software and Hardware of a General Purpose Robot Controller Board Considering Common Limit Factors; under supervision of Assoc. Prof. Dr. Farrokh Koroupi

Research interests

Semantic Robotics	Distributed collaborative Autonomous Robotic Systems, Semantic Reasoning, Semantic and Artificial Intelligence, Semantic Robotics
Computer Security	Cryptography for Client/Server Authentication and Impersonation Avoidance, ECC, Communication Security, TDE
Parallel Computing	Solving and parallelization of ultra dense linear matrices on GPGPU supercomputers, Parallel Algorithms, Distributed Leader Election Algorithms, Multi Agent Programming, Mobile Supercomputing, Exascale Supercomputing Design
Semantic Web and Data	Context-Aware Data Processing, Native Semantic and Hierarchical Migrated Databases, Efficient Hierarchical Schemas for RDBMS
Industrial Automation	Embedded Development, Robotics, Programmable Logic Controllers, Industrial IoT

Journal Publications:

- [1] Leila Rahnama, Asghar Rezasoltani, Mino Khalkhali Zavieh, Behnam Rahnama, Farhang Noori-Kochi, "Reliability of new software in measuring cervical multifidus diameters and shoulder muscle strength in a synchronized way; an Ultrasonographic study", *Brazilian Journal of Physical Therapy*, Volume 19, Issue 4. 2015.
- [2] Rahnama, Behnam; "Towards Improved Parallelism through Order Reduction of Accessing Data in nD Matrices", *The Journal of Supercomputing*: Volume 70, Issue 2 (2014), Page 977-986 doi:10.1007/s11227-014-1271-1 (SCI)
- [3] Sari, A. Rahnama, B., Caglar, E. (2014); "Ultra-Fast Lithium Cell Charging Architecture For Mission Critical Applications", *Transactions on Machine Learning and Artificial Intelligence*, TMLAI, ISSN: 2054-7390. (Refereed International Journal)
- [4] Kivanc Bilecen, Behnam Rahnama, Ender Altiok, High Performance Computing Based Smart Scan for the Identification of Species Based Unique DNA Sequences, *New Biotechnology*, Volume 31, Supplement, July 2014, Page S106 (SCI)
- [5] Kuren, E., Rahnama, B., Sari, A. (2013); "Performance Analysis of Reactive MANET Protocols under DoS attacks", *International Journal of Networking*, ISSN: 2249-2798. (Refereed International Journal)
- [6] Rahnama, B., Sari, A., Makavandi, R., (2013); "Countering PCIe Gen. 3 Data Transfer Rate Imperfection Using Serial Data Interconnect", *Special Issue of International Journal of New Computer Architectures and Their Applications*, Vol. 3, No. 1, ISSN: 2220-9085. (Refereed International Journal)
- [7] Manuel Carcenac and Behnam Rahnama, Parallel Resolution of Dense Linear Systems with Cuda And Cublas, *Journal of Electrical and Computer Sciences*, Vol. 1, No. 1, June 2013, ISSN:1308-237X pp. 63-69 (Refereed International Journal)
- [8] Sari, A. Rahnama, B. (2013); "Dynamic Source Routing Management for Mobile Networks", *Jökull Journal*, ISSN: 0449-0576.(SCI-E)
- [9] Atilla Elçi and Behnam Rahnama, Ramin Bakhshi, Hamid Mir-Mohammad Sadeghi: A Novel and Simple-to-implement Friend or Foe Identification System in Multi-robot battlefield, *SDU International Journal of Technological Sciences*, Vol. 3, no:1(2011), Isparta, Turkey. (Refereed International Journal)
- [10] Atilla Elci, Behnam Rahnama, and Amirhasan Amintabar: Tracking Reported Vehicles in Traffic Management and Information System using Intelligent Junctions. In Special Issue on Vehicular Wireless Networks and Vehicular Intelligent Transportation Systems, *Journal of Information Science and Engineering*, V.26, N.3, May 2010. (SCI-E)

Conference Publications

- [1] B. Rahnama, H. Amoozegar, Application of robotic technology in cardiology and cardiac surgery; 7th international Kowsar Hospital Congress on "Updates of: how to approach, how to manage cardio-vascular diseases, April 2016, Shiraz, Iran
- [2] B. Rahnama, Robotics in Rehabilitation; 16th Specific Spinal Physical Therapy Seminar, USWR, 23-24 December 2015, Tehran, Iran
- [3] L. Rahnama, A. Rezasoltani, M. Khalkhali, F. Noori Kochi, A. Akbarzadeh, B. Rahnama; Intrarater Reliability of a New Software for Recording the Muscle Strength and Size in a Synchronized Way, 7th World Congress of Biomechanics Boston, Massachusetts July 6-11, 2014
- [4] Behnam Rahnama, Yunus Kiran, Raz Dara, Countering AES static s-box attack, SIN '13 Proceedings of the 6th International Conference on Security of Information and Networks, Pages 256-260 ISBN: 978-1-4503-2498-4
- [5] Arif Sari, Behnam Rahnama, Addressing security challenges in WiMAX environment, SIN '13 Proceedings of the 6th International Conference on Security of Information and Networks, Pages 454-456, ISBN: 978-1-4503-2498-4
- [6] Rahnama, B., Sari, A., Makvandi, R. (2013); "Countering PCIe Gen. 3 Data Transfer Rate Imperfection Using Serial Data Interconnect", *The IEEE International Conference on Technological Advances in Electrical, Electronics and Computer Engineering (TAECE2013)*, Vol X, May 09-11, Turkey.

- [7] Behnam Rahnama, Atilla Elci, and Cankat Özermen, “Design and Implementation of Cooperative Labyrinth Discovery Algorithms in Multi-Agent Environment”, *The International Conference on Technological Advances in Electrical, Electronics and Computer Engineering (TAECE2013)*, Vol X, May 09-11, Turkey.
- [8] Sari, A., Rahnama, B. (2013); “Simulation of 802.11 Physical Layer Attacks in MANET”, *The 5th International Conference on Computational Intelligence, Communication Systems and Networks (CICSyN2013)*, Volume 16, June 05-07, Spain.
- [9] Sari, A., Rahnama, B. (2013); “Dynamic Route Forwarding Mechanisms in Multi-hop Wireless Networks”, *IEEE 24th International Symposium on Personal, Indoor and Mobile Radio Communications: Special Sessions (PIMRIC13)*, Volume 13, September 08-11, United Kingdom.
- [10] Behnam Rahnama, Makbule Canan Özdemir, Yunus Kıran, Atilla Elçi, “Design and Implementation of a Novel Weighted Shortest Path Algorithm for Maze Solving Robots”, ESAS 2013: The 8th IEEE International Workshop on Engineering Semantic Agents - Intelligence & Robotics, Held in conjunction with COMPSAC, the IEEE Signature Conference on Computers, Software & Applications - July 22-26, 2013 - Kyoto, Japan
- [11] Behnam Rahnama, Kemal Ebedi, and Hamid M. Sadeghi, “Self-Corrective Cascade Control Obstacle Avoidance and Deviation Correction System for Robotics Systems” 2013 IEEE RO-MAN: The 22nd IEEE International Symposium on Robot and Human Interactive Communication, Gyeongju, Korea, August 26-29, 2013
- [12] B. Rahnama, R. Makvandi, “Designing Energy Efficient Ultra-Dense Scalable Supercomputing Cluster for the Parallelization of the Dense Systems” Poster Presentation, Third Annual International Conference on Energy Aware Computing, organized by the Middle East Energy Efficiency Research Center (MER). 2012 ICEAC B.
- [13] Rahnama, R. Makvandi, “Designing Ultra-Dense Scalable GPGPU Supercomputing Node for the Parallelization of Dense Systems”, EEECS’12: 7th International Symposium on Electrical & Electronics Eng. and Computer Systems. 2012
- [14] Behnam Rahnama, Atilla Elci, Shadi Metani; An Image Processing Approach to Solve Labyrinth Discovery Robotics Problem, IEEE COMPSAC 2012, 16-20 July 2012, Izmir, Turkey.
- [15] Atilla Elçi, Behnam Rahnama, Reza Makvandi; Microcontroller-Based Implementation of parseKey+ for Limited Resources Embedded Applications, ACM SINCONF 2011, 14-19 November 2011, Sydney, Australia, ISBN: 978-1-4503-1020-8.
- [16] A. Cellatoglu, M. Sari, B. Rahnama, K. Balasubramanian, Remote Sensing of a Geographical Environment with Portable Radars and Satellite Link, Third International Conference on Advances in Recent Technologies in Communication and Computing, ARTCom 2011, IET-Digital Lib. 14-15 Sep 201, Bangalore, India, pp: 137 – 141
- [17] Elçi, A., Rahnama, B., Bakhshi, R., and Sadeghi, H. M. (2011): A Secure Scheme for Friend or Foe Identification in Battle Scene. The Third International Conference on Wireless & Mobile Networks (WiMo-2011), June 26 ~ 28, 2011, by www.airccse.org, Ankara, Turkey. (Invited talk).
- [18] Peyman Aghajamaliaval, Reza Makvendi, Behnam Rahnama; Analysis of processing gain and number of symbol per slot in DS-CDMA closed loop power control systems, The 6th International Symposium on Electrical and Electronics Engineering and Computer Systems (EEECS’10), European University of Lefke, Gemikonağı, Northern Cyprus, 25-26 Nov 2010.
- [19] Manuel Carcenac, Behnam Rahnama; Application to the parallelization of the resolution of a dense linear system, The 6th International Symposium on Electrical and Electronics Engineering and Computer Systems (EEECS’10), European University of Lefke, Gemikonağı, Northern Cyprus, 25-26 Nov 2010.
- [20] Behnam Rahnama, Atilla Elçi, Hamid Mir-Mohammad Sadeghi, Ramin Bakhshi; Semantic Intelligent Decision Maker Self Localizing Client CLDR, The 6th International Symposium on Electrical and Electronics Engineering and Computer Systems (EEECS’10), European University of Lefke, Gemikonağı, Northern Cyprus, 25-26 Nov 2010.
- [21] Behnam Rahnama, Atilla Elci, SelcukCelik; Securing RFID-Based Authentication Systems Using ParseKey+, 3rd International Conference on Security of Information and Networks (SIN’10), Sept. 7–11, 2010, Taganrog, Rostov-on-Don, Russian Federation.

- [22] Atilla Elçi and Behnam Rahnama: AWGN based Seed for Random Noise Generator in ParseKey+. In Proc. Int'l Conf. on Security of Information and Networks (SIN 2009) 6-10 October 2009, Salamis Bay Conti Resort Hotel, Gazimagusa, TRNC, North Cyprus. pp: 244-248, ACM Press, 2009
- [23] Behnam Rahnama, AtillaElçi, Ramin Bakhshi, Alirad Malek, and Arjang Ahmadi: Microcontroller-based AWGNG for Security Enhancement of Embedded Real-time Web Services. In Proc. 2nd IEEE International Workshop on Real-Time Service-Oriented Architecture and Applications (RTSOAA 2009) in conjunction with 33rd COMPSAC, 20 July 2009, Seattle, WA, USA. IEEE CPS.
- [24] Atilla Elçi and Behnam Rahnama, Ramin Bakhshi, Hamid Mir-Mohammad Sadeghi: A Novel and Simple-to-implement Friend or Foe Identification System in Multi-robot battlefield, 2nd International Joint Robotics Competition and Symposium (IJRCS 2009) 20-24 May at Suleyman Demirel University, Isparta, Turkey.
- [25] Atilla Elci, Behnam Rahnama, Saman Kamran. (2008). Defining a Strategy to Select Either of Closed/Open World Assumptions on Semantic Robots. *COMPSAC2008*. Turku, Finland: IEEE. July 28 - August 1, 2008
- [26] Elçi Atilla, Rahnama Behnam, and Bahreini Kiavash; Embedding Matrices Ontology into Math Software Engines to Support Reasoning and Mission Oriented Calculation in Developing Semantic Agents, The International Conference on Semantic Web and Web Services (SWWS'08), Monte Carlo Resort, Las Vegas, Nevada, USA (July 14-17, 2008).
- [27] Atilla Elçi and Behnam Rahnama (2008): Securing The Enterprise Semantic Web Resources: Towards Secured OWL? In Proc. 10th Information Security International Research Conference (ISIRC'08), 23 – 27 June 2008, Taganrog, Russia. Vol. 1, pp: 302-308. Invited Paper.
- [28] Elçi Atilla, Rahnama Behnam; Human-Robot Interactive Communication Using Semantic Web Technologies in Design and Implementation of Collaboratively Working Robots, 16th IEEE International Symposium on Robot and Human Interactive Communication, IEEE Roman 2007, 26-29 August 2007, Jeju Island, Korea, Notification of acceptance: April 30, 2007
- [29] B. Rahnama and A. Elci: "ParseKey+: a Five-Way Strong Authentication Procedure as an Approach to Client/Server Impersonation Avoidance Using Steganography for Key Encryption", in Proc. the 2007 International Conference on Security and Management (SAM'07), June 25-28, 2007, Las Vegas, USA, in the federated conferences The 2007 World Congress in Computer Science, Computer Engineering, and Applied Computing (WORLDCOMP'07). pp: 97-106.
- [30] Elçi Atilla, Rahnama Behnam, Applying ParseKey+ as an approach to resolve imperfect counter utilization in IEEE802.11i, International Conference on Security of Information and Networks (SIN 2007) May 8-10, 2007, Gazimagusa, TRNC, Turkey
- [31] Elçi, Atilla and Rahnama, Behnam; Applying Semantic Web in Engineering a Modular Architecture for Design and Implementation of a Cooperative Labyrinth Discovery Robot, 4th FAE International Symposium on Computer Science and Engineering, European University of Lefke, 30 Nov - 1 Dec 2006, Gemikonağı, Northern Cyprus.
- [32] Elçi, Atilla, Rahnama, Behnam, and Amintabar, Amirhasan; Security through Traffic Network: Tracking of Missing Vehicles and Routing in TMIS using Semantic Web Services, The Second IEEE International Conference on Technologies for Homeland Security and Safety (TEHOSS 2006) 09-13 October 2006, Istanbul, Turkey.
- [33] Rahnama, Behnam and Elçi, Atilla; Upon human-robot inter communication, RO-MAN 06 Robot Companion Design Contest, Proc. the 15th IEEE International Symposium on Robot and Human Interactive Communication, 6-8 September 2006, University of Hertfordshire, Hatfield, UK.
- [34] Elçi, Atilla and Rahnama, Behnam; XMLEase: A Novel Access- and Space-Efficiency Model for Maintaining XML Data in Relational Databases, 2006 International Conference on Semantic Web and Web Services (SWWS'06) June 26-29, 2006, Las Vegas, USA
- [35] Rahnama, Behnam and Elçi, Atilla; A Novel No-Latency and Simple-to-Implement Packet Loss Recovery Technique for Multimedia Streams, ISCN 2006 IEEE 7th International Symposium on Computer Networks, (ISCN'06), 16-18 June 2006, Istanbul, Turkey.
- [36] Elçi, Atilla and Rahnama, Behnam; Intelligent Junction: Enhancing Quality of Life through Traffic Management, Proc. YvKB'06 4th Congress on Informatics in Built and Municipality, Ankara, 8-9 June 2006, p.: 67-74, TBD Publications, ISBN: 9944-5291-0-9 (in Turkish).

- [37] Elçi, Atilla and Rahnama, Behnam; XML Ease- A Speed Efficient Approach to Courseware Data Representation in Relational Databases, Proc. 6th International educational Technology Conference”, IETC 2006, Vol. 2, pp: 634-643, 19-21 April 2006, Gazimagusa, Northern Cyprus.
- [38] Elçi, Atilla and Rahnama, Behnam; Considerations on a new Software Architecture for Distributed Environments using Autonomous Semantic Agents, Proc. 29th COMPSAC, IWSC 2005, 26-28 July 2005, Edinburgh, UK,;IEEE Press, ISBN: 0-7695-2413-3, ISSN: 0730-3157, pp.: 133-138.
- [39] Elçi, Atilla and Rahnama, Behnam; ParseKey, a New Approach to Unbreakable Secure Authentication Service, ABG2005, National Symposium on Network and Information Security, pp.108-113, 9-12 June 2005, Istanbul, Turkey.

Book Chapters:

- [1] Behnam Rahnama, Arif Sari, and Marwan Yassin Ghafour; Solving SSL Security Vulnerability by Applying ECC Authentication, Handbook of Research on Network Security Attacks and Countermeasures. (2015)
- [2] Behnam Rahnama, Arif Sari, and Raz Dara Amin; Countering AES Vulnerabilities, Emerging Security Solutions Using Public Key and Private Key Cryptography: Mathematical Concepts. (2015)
- [3] Birim Balci Demirci, Behnam Rahnama, and Atilla Elçi; New Trends in Semantic Oriented Cloud Based Educational Systems Handbook of Applied Learning Theory and Design in Modern Education. (2015)
- [4] Sari, A., Rahnama, B., “Security Issues in Mobile Wireless Networks”, Security for Multi-hop Wireless Networks, Averbach Publications, Taylor & Francis Group, January 2013.
- [5] A. Elçi & B. Rahnama (2009): Semantic Robotics: Cooperative Labyrinth Discovery Robots for Intelligent Environments. In Complex Systems in Knowledge-Based Environment: Theory, Model, and Application (Editors: A. Tolk & L. C. Jain) in Series: Studies in Computational Intelligence, Vol. 168 by Springer Publishing. 272 p. 113 illus., Hardcover. ISBN: 978-3-540-88074-5. pp: 163-198.
- [6] Atilla Elçi and Behnam Rahnama (2009): Towards Semantically Intelligent Robots. In Advances in Human-Robot Interaction, ISBN 978-953-7619-X-X. In-TECH Publishers.

Books

Published

- [1] Hierarchical Data in RDBMS: A New Horizon for Data Storage and Retrieval, Behnam Rahnama, LAP LAMBERT Academic Publishing (September 2011), ISBN-13: 978-3846517604 Available online at Amazon.com

Under Press

- [2] Introduction to Semantic Robotics, Behnam Rahnama, Expected publication date: November 2017
- [3] Towards Decidable Reasoning, Behnam Rahnama, Expected publication date: September 2017
- [4] Microcontroller-based Implementation of Security Algorithms: The Case of Client/Server Impersonation Avoidance, Reza and Behnam Rahnama, Expected publication date: September 2017

Supervised Theses

PhD

- [1] Reza Makvandi (EMU), Design and Implementation of Ultra-Dense scalable GPGPU Supercomputing node for the parallelization of the resolution of a dense linear system, Doctor of Philosophy, Eastern Mediterranean University (Discontinued September 2013)
- [2] Meltem Kurt (Kocaeli), Design and Implementation of Semantic Reasoning Engine based on Four-Valued Logic, Doctor of Philosophy, Eastern Mediterranean University (Discontinued September 2013)
- [3] Mohsen Mohammadi (EMU), Secure Data and Voice Communication Protocol over Cellular Network, Doctor of Philosophy, Eastern Mediterranean University (Continuing)

MSc

- [1] Marwan Ghafour (EUL), Countering RSA imperfection using Elliptic Curve Cryptography Technique, Master of Science in Computer Engineering, European University of Lefke (Graduated 2013)

- [2] Raz Dara (EUL), Countering AES S-Box Vulnerability, Master of Science in Computer Engineering, European University of Lefke (Discontinued May 2013)
- [3] Kemal Ebedi (EUL), Self-Corrective Cascade Control Obstacle Avoidance and Deviation Correction System for Robotics Systems, Master of Science in Electrical and Electronic Engineering, European University of Lefke (Graduated 2012)
- [4] Roghayeh Dehghani (SRBIAU), Implementation of ALCK_{EF} Reasoning Engine through Pellet for Semantic Web based Information Retrieval, Science and Research Branch Azad University of Tehran (Graduated 2012)
- [5] Reza Makvandi (EMU), Microcontroller-based Implementation of ParseKey+: a Multi-Way Strong Authentication Procedure as an Approach to Client/Server Impersonation Avoidance for Embedded Applications, Master of Science in Electrical and Electronics Engineering, Eastern Mediterranean University (Graduated 2011)
- [6] Cankat M. Özermen (EUL), Implementation of ALCK_{EF} as Core of Decision Making in Collaborative Micro-mouse Robotics, Master of Science in Computer Engineering, European University of Lefke (Graduated 2011)
- [7] Andyson Utomudo (EUL), Design and Implementation of Digital Menu for Restaurants, European University of Lefke (Graduated 2011)
- [8] Ibukun Eweoya (EUL), Countering Vulnerabilities of Advanced Encryption Standard (AES), European University of Lefke (Graduated 2011)
- [9] Shadi S. M. Metani (EUL), Cooperative Labyrinth Discovery Robotics based on Solving Uncharted Maze through Image Processing Techniques, European University of Lefke (Graduated 2011)
- [10] Mustafa Sarı (EUL) Design and Implementation of Self-Powered Remote Sensing Nodes with Ability of Transmitting Acquired Data Over Satellite, European University of Lefke (Discontinued 2011)

Given Courses

Undergraduate:

- Computing Foundations / Introduction to Computer Engineering
- Programming in C
- Analysis of Algorithms
- Data Structures
- Operating Systems
- Programming Languages Design
- Object Oriented Programming
- Internet and Multimedia
- Programmable Logic Controller
- Microprocessor
- Computer System Organization and Architecture
- Software Engineering
- Artificial Intelligence
- Introduction to Robotics
- Embedded System Design
- Database Security

Postgraduate:

- Parallel and Distributed Programming
- Cryptography and Network Security
- Advanced Topics in Robotics
- Computer Communication and Network
- Advanced Computer Architecture
- Semantic Web

Academic Activities

Served as:

- *Establishing CUDA Research and Teaching Centers, ACM, and IEEE Student Branches, Cognitive Robotics and Supercomputing Laboratories at Okan University Since September 2013 to present.*
- Chiar, MES2015 Mobile and Embedded Supercomputing Workshop in conjunction with COMPSAC2015.
- Formatting manuscripts of the Journal of Electrical and Computer Sciences, Vol 1, No. 1, June 2013, ISSN:1308-232X.
- Program Committee, COMPSAC 2013, and Co-Chair at SINCONF2013, ESAS 2013, IJRCS2013.

- Associate Editor, The 6th International Symposium on Electrical and Electronics Engineering and Computer Systems (EEECS'10), European University of Lefke, Gemikonağı, Northern Cyprus, 25-26 Nov 2010.
- Volunteers, Internet Presence, and Exhibits Chair of International Conference on Security of Information and Networks (SIN 2007) <http://www.sinconf.org/> 8-10 May 2007
- Assistant Chair of International Joint Robotics Competition (IJRC 2008) 15-17 May 2008, Famagusta, North Cyprus. <http://www.ijrcs.org/>
- Formatting and Arrangement of "Security of Information and Networks" Proceedings of the First International Conference on Security of Information and Networks (SIN 2007) by Elçi, A., Ors, B., & Preneel, B. (eds.) Trafford Publishing, Canada. 2008. ISBN: 978-1-4251-4109-7.
- Symposium Co-Chair, 2nd International Joint Robotics Competition and Symposium (IJRCS 2009) 20-24 May at Suleyman Demirel University, Isparta, Turkey.
- Volunteers, Internet Presence, and Exhibits Chair, 2nd International Conference on Security of Information and Networks (SIN 2009) 6-10 October 2009, Salamis Bay Conti Resort Hotel, Famagusta, North Cyprus.

Academic Research projects

Current:

Jan 2016 – Present Heterogeneous Radio Frequency Wireless Sensor and Actuator Network for Controlling Uncharted Borders

Previous:

June 2014 Use of the High Performance Computing for Smart Scanning in Identification of Species Based Unique DNA Sequences

June 2012 Universal Campus Automation System (University Management System UMS)

February 2011 Design and implementation of a GPU-based supercomputer architecture
Design and implementation of dense matrix calculation library (linear system resolution) based on CUDA CUBLAS

May 2010 Interrelating Gravitational Force and Electromagnetic Energy, (Concept Design)

June 2008 Campus Automation System based on Plone CMS and MS SharePoint

May 2008 Self-Corrective Compass Cascaded Control System for AGVs

March 2008 Cooperative Mini Fighter Robots

January 2008 Hybrid Scheme for CWA/OWA Reasoning

Feb 2006 Applying Semantic Web Technology on Cooperative Labyrinth Discovery Robots

Nov 2005 Design and implementation of 128 parallelized Pentium computers independent to OS over Ethernet, using the Message passing Interface-2 standard; under supervision of Asst. Prof. Dr. Manuel Carcenac, Computer Engineering; Eastern Mediterranean University

Nov 2005 Cooperative Labyrinth Discovery Project, Design schemes and Semantic Web Service and embedded system Architecture; under supervision of Assoc. Prof. Dr. Atilla Elçi, Computer Engineering, Eastern Mediterranean University

Oct 2005 A Neural Network Based Super-Resolution Method for Video Stream Compression and Decompression; under supervision of Asst. Prof. Dr. I. Aybay and Asst. Prof. Dr. Manuel Carcenac, Computer Engineering, Eastern Mediterranean University

Jan 2004 DaemonEX Web Interface client for the mail server configurations and DaemonEX Server, Web API mail server modules, ETec Research Institute, Iran

Jan 2004 Persian Web Mail Server using DaemonEX protocol on FreeBSD and Linux Servers

Employment

Oct 2015 – Present	Founder and CEO of Multi Engineering Disciplines Innovative Sciences (MEDIS) , a holding knowledge based company focusing on interdisciplinary engineering projects (www.medis-holding.com)
Sep 2016 – Dec 2016	Dean of Faculty of Engineering and Head of Computer Center at Cyprus Science University serving as a Full Professor.
Jun 2015 – Sep 2016	Consultant to the Chairman of Internet and Communication Technology Center (ICT) at Shiraz University
Feb 2015 – Jun 2015	Senior Software Engineer, ScaleDB Inc. 3723 Haven Avenue, Menlo Park, CA 94025, USA
Sep 2013 – Feb 2015	Assistant Professor in Computer Engineering at T.C. Okan University, Turkey
Feb 2010 – Sep 2013	European University of Lefke, Rector's Coordinator for IRI Communications
Feb 2010 – Sep 2013	Chairman of department of Electronics and Communication Engineering, European University of Lefke (Assistant Professor at the department of Computer Engineering)
Sep 2009 – Feb 2010	Project Design and Implementation Center, Faculty of Engineering, Eastern Mediterranean University
Feb 2009 – Sep 2009	Eastern Mediterranean University Rector's Consultant's Assistant in Informatics and Campus Automation
Sep 2008 – Feb 2009	Full time Lecturer at Dept. of Electrical and Electronics Engineering, Cyprus International University (CIU)
Jun 2008 – Sep 2008	Eastern Mediterranean University Rector's Consultant's Assistant in Informatics and Campus Automation
Feb 2006 – Jun 2008	Lecturer, Faculty of Communication and Media Studies, EMU Full Time PhD Research Assistant (Webmaster), Dean of Faculty of Communication and Media Studies, Eastern Mediterranean University
Sep 2004 – Feb 2006	Full Time Research Assistant, Department of Computer Engineering, Eastern Mediterranean University (Teaching and Grading Electric and Electronic labs of Comp. Eng. Dept.)
Feb 2004 – Feb 2006	Managing Director and Chief of Board of Directors, Ava-Afzar Co. Iran (Providing Content Management Web Services, Cryptography and Network Security, Robotics and Autonomous Agents)
Feb 2004 – Jul 2004	Student Assistant, Department of Mechanic Engineering, Eastern Mediterranean University (Establisher and manager of Robotics Group - Mechatronic aspects)
Sep 2001 – Feb 2004	Manager, ETec Research Institute, Iran (Dealing with Robotics, Artificial Intelligence, Multi-threaded OS for Microcontroller Systems, Web Application Programming)

Honors and awards

2016	Full Professorship Position at the faculty of Engineering, Cyprus Science University.
2013	Associate Professorship Position in Computer Engineering
2012	IEEE Senior Membership Award, Aug. 2012
2010	Assistant Professorship Position at the department of Computer Engineering, European University of Lefke, Gemikonağı, North Cyprus.
2009	Atilla Elçi and Behnam Rahnama, The prestigious Jury's Award, "Special Prize for Technical Merit", for "Cooperative Labyrinth Discovery- Client Robots Project";2nd International Joint Robotics Competition and Symposium (IJRCS 2009) 20-24 May at Suleyman Demirel University, Isparta, Turkey.

- 2009 The Second Place in "Mini Sumo Teams" by the "Faithful Robots" Team; 2nd International Joint Robotics Competition and Symposium (IJRCS 2009) 20-24 May at Suleyman Demirel University, Isparta, Turkey.
- 2009 The Third Place in "Free Style" project category by the "Security Robot"; 2nd International Joint Robotics Competition and Symposium (IJRCS 2009) 20-24 May at Suleyman Demirel University, Isparta, Turkey.
- 2008 Atilla Elçi, Behnam Rahnama, Mohamad N. Sabet Jahromi, and Reza Abrishambaf Fourth Place in Innovation Project Competition for Project on Self-Corrective Compass Cascaded Control System for AGVs. Project Competition, GMTGB Teknopark, North Cyprus. 2008.
- 2007 "First Place" in the Free Style Category for The CLD Robot developed by my Cooperative Labyrinth Discovery Project by 4th METU Robotics Days Competition, METU, Ankara, Turkey. 2007.
- 2007 Volunteers, Internet Presence, and Exhibits Chair, International Conference on Security of Information and Networks (SIN/ABG 2007) May 8-10, 2007
- 2006 "Special Prize for Technical Merit" for CLD Robot in the Robot Companion Design Contest; by 15th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 06), University of Hertfordshire, Hatfield, UK. 2006.
- 2006 Cooperative Labyrinth Discovery (CLD) Project with the support of "the Fund for Enhancing Scientific Activity in Higher Education by the Ministry for National Education and Culture, TRNC: 7 months, budget of 8,500 YTL, started Oct. 2005; ended 30 December 2006.
- 2006 Fulltime Research Assistantship, Dean of Faculty of Communication, Eastern Mediterranean University (including summer semesters)
- 2005 Assistant of awarded project based on Autonomous Semantic Agents, Ministry of Higher Education and Culture of Northern Cyprus
- 2004 Fulltime Research Assistantship, Department of Computer Engineering, Eastern Mediterranean University
- 2003 First rank of national robotic competition - Labyrinth Discovery, Azad University of Najafabad, Iran

Membership of Professional societies

4259800	Association for Computing Machinery (ACM)	brahnama@acm.org
80505661	Institute of Electrical and Electronics Engineers (IEEE)	rahnama@ieee.org
	(Senior Member)	
	IEEE Robotics and Automation Society	
	IEEE Computer Society	

Software Skills

Operating Systems	OS X, Linux, OpenBSD, Solaris, Windows from 3 to 10!
Graphics	Adobe InDesign, Photoshop, Fireworks
Office	Open Office, MS Office, Scientific Workplace, LaTeX, Acrobat
Embedded	Windows Embedded Standard, Embedded Linux
Electronics	Proteus, Eagle, OrCAD, Protel, EWB, Logisim
Web Development	Dreamweaver, Frontpage, Sharepoint Designer and Server, CMS, Cake PHP, iWeb, ...
Languages	VC++ .Net, OO-PHP, OWL!, C/C++ in any scale, Assembly, Pascal, and a bit of Go
IDEs	Visual Studio, Xcode, NetBeans, Protégé, Eclipse, Qt

Hardware Skills

Electronics	PCB production, SMT
Mechatronics	Mounting, Milling, CNC, Spot Welding
SoC	FPGA, Vortex86, Multicore ARM
Microcontrollers	32-bit AVR, 64-bit ARM, PIC, Intel 51 and 96 series, Arduino

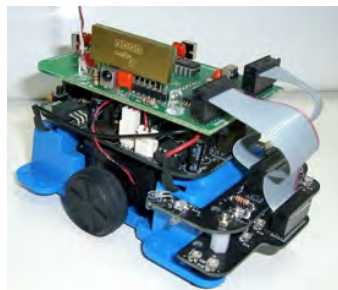
Languages

English (Fluent), Persian (Maternal Language), Turkish (Fair), Arabic (Little), French (Débutant), Chinese (初学者)

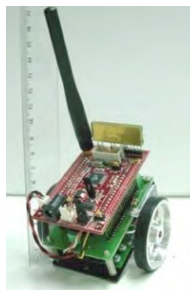
Glance through Labyrinth Discovery Robotics



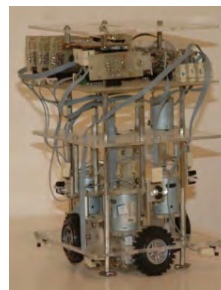
CLD



Cruiser



CCLDR-V2

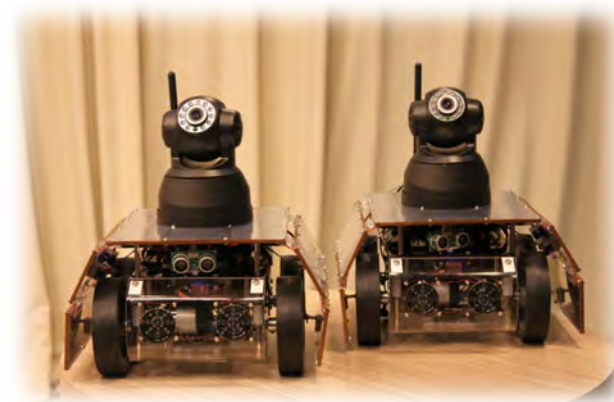


Labyrinth



Sandwich

A CLDR has advanced design and development features in a small footprint, mobile, intelligent, semantic robot. They are two types of CLDRs, namely, Server CLDRs (SCLDRs AKA CLD), and Client CLDRs (CCLDRs). SCLDRs are powerful small form factor full fledged robots carrying lithium polymer battery management, CMOS camera, and System on Chip SoC embedded boards to hold the infrastructure for installing embedded OS such as Windows Embedded Standard, powered with Wi-Fi and 433MHz Wireless transceiver etc. On the other hands, CCLDRs were designed with fewer capabilities but yet powerful enough to serve the required tasks cooperatively. Instead of developing CCLDRs from scratch, we decided to purchase ready-made cheap maze solver robots and equipped them with as many as feasible features required serving MASAs environment. The Cruiser uses Atmel Atmega8 Microcontroller with only 512 bytes of EEPROM, 8 KB of flash programmable memory and 1KB of RAM. Neither the size of flash nor RAM is suitable for the job that a CCLDR is supposed to do. Therefore, the Cooperative Labyrinth Discovery Robotics is done based on a Client-Server approach. The second design CCLDRs were made from scratch following the dynamism of inverted pendulum. In this scheme, each motor is equipped with shaft encoders as well so that an accurate movement is possible without deep consideration of localization problem. Standalone traditional schemes to solve maze includes Labyrinth and Sandwich robots. The beauty in design of the Labyrinth robot is the perpendicular movement using elevated axes connected to each two wheels to make the robot able to move perpendicularly without rotation. Other fields I work includes cooperative mini-sumo robotics, security robotics etc.

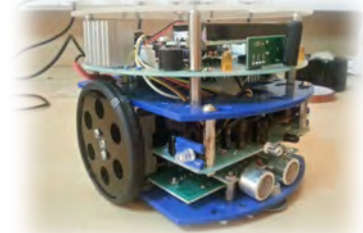


The *Leopard GES* Robots as shown at the left hand side, are collaborative robotics twins aim to be multipurpose robotics platform with variety of features. The Atmel Pico Power Architecture allows robot to stay alive for more than 14 days. Gear-head DC motors with quadruple shaft encoders and digital compass provide the accuracy of less than 0.5 degrees deviation or a millimeter in straight run at 1 m/s speed. Robots may transfer captured data (Video with night vision, Audio, Distance, Temperature, Humidity, etc.) over Wi-Fi, Bluetooth, GSM, and USB, or store them on a micro SD card. Stereo Amplifier may deliver a transmitted voice or playback an mp3 audio or represent the text to speech engine output.

Polycrystalline Cells placed on a moving wing assure the maximum charging efficiency. Additionally, The Electromagnetic Charger enables the robot to charge itself autonomously and without human interaction. Furthermore, integrated feedback brushless DC fans cool Buck and Boost switching circuits and various level voltage regulators. The color LCD and the keypad provide mid-level service oriented user interaction with the system. Programming and upgrading cannot be easier with support of the Atmel Software Framework and Atmel Studio, and on board AVR-ISP.

Other Robotic Projects

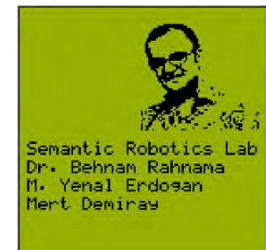
- [1] **Blue Mouse:** In this project a compact version of CLD robot is designed for discovering the labyrinth collaboratively. Basically five multi-agent algorithms are tested namely, Weighted Shortest Path, Flood Fill, Modified Flood Fill, $ALCK_{EF}$, and Ideal. The robot keeps the discovered path in the memory avoiding unwanted moves for future decisions. In addition, Blue Mouse is able to receive commands from a superior robot such as CLD or from the host computer.



- [2] **Synchronous Dancing Robots:** Three mini robots synchronously dance together. Actions are distributed through a secure wireless medium and robots act accordingly. They move at the same time and in the same way. They communicate with each other and the host computer. Other sensors control trajectory and distance to surrounding objects. Communication is secure and message delivery is guaranteed by a synchronous acknowledged messaging system uniquely defined and designed for this project.



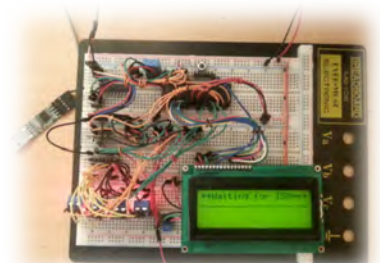
- [3] **Wireless Billboard:** A simple to implement but yet quite successful project for educational purposes is the wireless billboard. Components highlighted by power LEDs according to the selection the user makes either on the controller board or the host computer. Commands are recognized using a speech detection system and necessary routines are called in order to manage the board functionality.



- [4] **BARPA Line Following Robot:** A famous category in line following robots is where ultra fast cars try to accomplish the mission. We modified a toy car by adding a control circuitry to read line sensors and control motors. The mechanical structure of the care has been modified for faster and more accurate movements. Having a fast tracking vehicle on the line make the challenge quite difficult on sharp turns. Therefore, control mechanism s are involved to adjust the speed accordingly.



- [5] **ADAMUS Ultra Fast Lithium Charging System:** This research presents design and implementation of the ultra fast parallel lithium charging architecture with an embedded algorithm using an active PWM charge pump supported by a hybrid control mechanism consisting of Temperature, humidity and current sensors. The new architecture guaranties the ultra fast parallel charging cycles of lithium cells without lifespan reduction due to possible overheating side effects in mission critical applications.



- [6] **Secure Mobile Wireless Communication:** A radio frequency transceiver utilized by applications of Simultaneous Localization and Mapping (SLAM) and Identification of friend or foe (IFF). Multiple agents “work together” to achieve a task that might be too difficult for a robot to carry out alone and also to increase the speed and efficiency of the robots in carrying out a specific task. It is not enough to send data from one robot to the other, the security of that information over wireless is also as important. AES (advanced encryption standard) is used to encrypt the payload.



- [7] Okan University’s students under Dr. Behnam Rahnama’s supervision designed Sumokan Cooperative Minisumo Robot. Mini sumo robot was built for research and joining national and international competitions. The robot wheels are connected to 6 parallel ultra fast gear-head dc motors. The Arduino Nano manages the robot decisions. 6 infrared range finders are used to identify opponents during the battle. Sensors are located at 4 sides of robot, giving it the ability to detect objects without turning around. Additionally, 4 infrared reflective sensors at the bottom of the robot make sure it stays on the platform.

