

## CURRICULUM VITAE

**BASEL ALI MAHAFZAH**  
(Associate Professor, Ph.D.)

*The University of Jordan*  
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**Google Scholar Citations:** <http://scholar.google.com/citations?user=cjUfPpUAAAAJ&hl=en>

**LinkedIn Profile:** <https://www.linkedin.com/profile>

**ResearchGate Profile:** [http://www.researchgate.net/profile/Basel\\_Mahafzah?ev=hdr\\_xprf](http://www.researchgate.net/profile/Basel_Mahafzah?ev=hdr_xprf)

### PERSONAL INFORMATION

- **Nationality:** Jordanian.
- **Marital Status:** Married.
- **Date of Birth:** August 2, 1969.
- **Place of Birth:** Paris – France.

### CURRENT POSITION

Associate Professor at Computer Science Department, King Abdullah II School for Information Technology, The University of Jordan, Amman – Jordan (March 7 / 2007 till Present).

### EDUCATION

- **Ph.D.**  
The University of Alabama in Huntsville (UAH), 1999.  
Major: Computer Engineering.  
First Minor: Computer Science.  
Second Minor: Mathematical Sciences.
- **Master of Science**  
The University of Alabama in Huntsville (UAH), 1994.  
Major: Computer Science.  
Minor: Computer Engineering.
- **Bachelor of Science in Engineering**  
The University of Alabama in Huntsville (UAH), 2000.  
Major: Computer Engineering.
- **Bachelor of Science**  
Mutah University, Jordan, 1991.  
Major: Computer Science.

## RESEARCH INTERESTS

Parallel & Distributed Computing, Parallel & Message-Passing Programming, Interconnection Networks, Performance Analysis & Evaluation, Artificial Intelligence, Data Mining, Software Clustering & Testing, Cellular Automata, and e-Learning.

## EMPLOYMENT & POSITIONS HELD

- **Chief Information Officer (CIO)**, King Abdullah University Hospital, Jordan University of Science & Technology (JUST), September 2006 till September 2007.  
*Responsibilities: Delivering high quality services in the areas of systems support, network operations, application developments, communication and video conferencing.*
- **Vice Dean** (Assistant professor), Faculty of Computer & Information Technology, Jordan University of Science & Technology (JUST), October 2002 till September 2004.  
*Responsibilities: Preparing Annual Faculty Budget, Faculty Annual Report, Conferences and Workshops, Training, Agreements with other IT universities, Projects, Students Graduation and Updating Faculty Web Site.*
- **Assistant Dean** (Assistant Professor), Faculty of Computer & Information Technology, Jordan University of Science & Technology (JUST), September 2000 till October 2002.  
*Responsibilities: Students Affairs, Curriculum Planning, Training and Equalizing Courses for Transferred Students.*

## ACADEMIC EXPERIENCE

- **Associate Professor**, Computer Science Department, The University of Jordan, March 7 / 2011 till Present.  
*Taught courses: Theory of Algorithms, Computer Organization, Operating Systems, Parallel Processing and Graduation Project as undergraduate courses, also Parallel and Distributed Computing, Operating Systems and Distributed Systems, and Computer Algorithms as graduate courses (M.S. and Ph.D. courses).*
- **Assistant Professor**, Computer Science Department, The University of Jordan, September 9, 2007 till March 2011.  
*Taught courses: Computer Skills, Theory of Algorithms, Operating Systems, Computer Organization, and Graduation Project as undergraduate courses, also Parallel Architecture in addition to Parallel and Distributed Computing as graduate courses.*
- **Assistant Professor**, Computer Science Department, Jordan University of Science & Technology (JUST), September 1999 – September 2007.  
*Taught courses: Introduction to Programming, Computer Algorithms, Computer Architecture, Operating Systems, Parallel Processing, Special Topics, Practical Training and Graduation Project I & II as undergraduate courses, also Parallel and Distributed Computing as a graduate course.*
- **Adjunct Faculty Member**, Computer Information Systems Department, Jordan University of Science & Technology (JUST), September 2003 – September 2007.  
*Taught courses: Computer Skills, Computer Algorithms, Operating Systems for Business Applications, Practical Training and Graduation Project I & II as undergraduate courses.*
- **Adjunct Faculty Member**, School of Engineering & Technology, New York Institute of Technology (NYIT), 2003 – 2007.  
*Taught courses: Computer Networks, Computer Architecture I, Computer Architecture II, Operating Systems I and Special Topics as graduate courses.*
- **Graduate Teaching Assistant**, Electrical & Computer Engineering Department, The University of Alabama in Huntsville (UAH), May 1996 – August 1998.  
*Taught laboratories: Digital Logic Design Laboratory, Electronic Measurement Laboratory and Electronic Devices and Design Laboratory as undergraduate laboratories.*

## RESEARCH EXPERIENCE

- **Research Visitor**, Electrical & Computer Engineering Department, The University of Alabama in Huntsville (UAH), June 2000 – August 2000.

*Working on the following research project: Performance Evaluation of a Decoupled Multithreaded Architecture.*

- **Graduate Research Assistant**, Electrical & Computer Engineering Department, The University of Alabama in Huntsville (UAH), August 1998 – May 1999.

*Working on the following research project: Verification of the Burst Queuing System Model for Parallel Programs.*

## HONORS & AWARDS

- Symbolic Award by the University of Jordan for the following papers published in ISI Web of Knowledge Database – Journal Citation Reports (JCR):
  - Performance assessment of multithreaded quicksort algorithm on simultaneous multithreaded architecture” *Journal of Supercomputing*, Springer, New York, USA, Vol. 66(1), pp. 339-363, October 2013.
  - Multi Small Index (MSI): A Spatial Indexing Structure, *Journal of Information Science*, SAGE, United Kingdom, Vol. 39(5), pp. 643-660, October 2013.
  - Digital Image Scrambling Using 2D Cellular Automata, *IEEE MultiMedia*, IEEE Computer Society, Los Alamitos, CA, USA, Vol. 19(4), pp. 28-36, October 2012.
  - The OTIS hyper hexa-cell optoelectronic architecture, *Computing*, Springer Wien, Austria, Vol. 94(5), pp. 411-432, May 2012.
  - The Optical Chained-Cubic Tree Interconnection Network: Topological Structure and Properties, *Computers & Electrical Engineering*, Pergamon-Elsevier, England, Vol. 38(2), pp. 330-345, March 2012.
  - A multiple-population genetic algorithm for branch coverage test data generation, *Software Quality Journal*, Springer, New York, USA, Vol. 19(3), pp. 489-513, September 2011.
- The University of Jordan (2011) award for distinguished researcher.
- Graduate research assistant scholarship awarded by The University of Alabama in Huntsville (UAH), Electrical & Computer Engineering Department, August 1998 – May 1999.
- Graduate teaching assistant scholarship awarded by The University of Alabama in Huntsville (UAH), Electrical & Computer Engineering Department, May 1996 – August 1998.
- A full graduate fellowship awarded by Jordan University of Science & Technology (JUST), Computer Science Department, June 1992 – June 1997.

## EDITORIAL & REVIEWING ACTIVITIES

- **Technical Program Committee Member**, The 2013 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT), The University of Jordan, Amman – Jordan, December 2013.
- **Technical Reviewer**, Proposed Research Projects by Scientific Research Council, Ministry of Higher Education, State of Palestine, August 2013.
- **Program Committee Member**, The First International Conference on Cloud Computing (ICCC'13), held at Princess Sumaya University for Technology, Amman – Jordan, April 2013.
- **Steering Committee Member**, The 3<sup>rd</sup> International Conference on Information and Communication Systems (ICICS 2012), held at Jordan University of Science & Technology (JUST), Irbid – Jordan, April 2012.
- **Program Committee Member** for the Pan Arab Regional Cyber Security Day 2011, held at the University of Jordan, Amman – Jordan, 2011.
- **Scientific Committee Member**, IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies 2011 (AEECT 2011); URL address: <http://ewh.ieee.org/r8/jordan/AEECT2011/>
- **Technical Committee Member**, International Arab Journal of Information Technology (IAJIT), (2000 – Present); URL address: <http://www.iajit.org>
- **Technical Committee Member**, The International Arab Conference on Information Technology (ACIT), (2000 – Present); URL address: <http://acit2k.org/ACIT/>
- **Technical Committee Member**, International Arab Conference of e-Technology (IACe-T), (2008 – Present); URL address: <http://www.iace-t.org/callforpaper.html>
- **Reviewer for the Following Journals:**
  - Journal of Supercomputing – Springer, USA
  - Cluster Computing – Springer, USA
  - International Journal of Parallel, Emergent and Distributed Systems – Taylor and Francis, UK
  - Parallel Algorithms and Applications – Taylor and Francis, UK
  - Computers & Electrical Engineering – Pergamon-Elsevier, England
  - Engineering Science and Technology, an International Journal (JESTECH) – Elsevier, USA
  - Information Processing Letters – Elsevier, USA
  - Journal of Information Science – Sage, UK
  - International Journal of Information Technology and Web Engineering – IGI Global, USA.
  - International Arab Journal of Information Technology – Jordan
  - Zarqa Journal for Research and Studies – Jordan
- **Reviewer for the Following Conferences:**
  - IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies (AEECT).
  - ACS / IEEE International Conference on Computer Systems and Applications (AICCSA).
  - The International Conference on Computational Aspects and Their Applications in Electrical Engineering (CATAEE).
  - The International Arab Conference on Information Technology (ACIT).
  - The International Arab Conference of e-Technology (IACe-T).

## CONSULTATIONS & COMMITTEES MEMBERSHIP

- **E-Government Program Study and Correction Path Committee Member**, Ministry of Information and Communications Technology, Amman – Jordan (October 2013).
- **Chair Committee**, Higher Education Accreditation Commission, Amman – Jordan, (June 2013).
- **Philadelphia University Board of Trustees Member** (March – November 2009).
- **Consultant** at the Ministry of Higher Education & Scientific Research for Information Systems, Amman – Jordan, (August – December 2007).
- **Scientific Committee Member**, Mediterranean Network of Universities (MedNet'U), Rome – Italy; URL address: [http://www.consorzionettuno.it/mednetu/e/skins/mednetu/home/index\\_1024.asp](http://www.consorzionettuno.it/mednetu/e/skins/mednetu/home/index_1024.asp)
- **Health Management Information System Evaluation Committee Member**, Royal Medical Services, (January – April 2009).
- **Technical Job Interview Committee Member**, Jordan Nuclear Regulatory Commission (JNRC), (April 2009).
- **Consultant and Evaluation Committee Member**, Open Robotics Championship – Jordan, (March 2010).
- **Consultant and Evaluation Committee Member**, First Lego League (FLL) – Jordan, (December 2007).

## ACADEMIC COMMITTEES MEMBERSHIP

- **The University of Jordan, University Committees, (2011 – Present):**
  - Member of the e-Learning Committee.
- **The University of Jordan, King Abdullah II School for Information Technology, (2007 – Present):**
  - Member of the Strategic Plan Committee.
  - Member of the Scientific Research, Conferences, Seminars, and Expositions Committee.
  - Member of the Curriculum Planning Committee.
  - Member of the e-Learning Committee.
  - Member of the Examinations and Quality Assurance Committee.
  - Member of the Accreditation Committee.
  - Member of the Activities and Awards Committee.
  - Member of the Broadcasting Committee.
  - Member of the I-Lab Committee.
- **The University of Jordan, Computer Science Department, (2007 – Present):**
  - Member of the Higher Studies Committee.
  - Member of the Appointment and Promotion Committee.
  - Member of the Ph.D. Program Committee.
  - Member of the Ph.D. Examinations Committee.
  - Member of the Curriculum Planning Committee.
  - Member of the Seminars and Expositions Committee.
  - Member of the Quality Assurance Committee.
  - Member of the M.Sc. Theses Examination Committees.
  - Member of the Graduation Projects Committee.
  - Member of the Training Committee.
  - Member of the Work Plan Committee.

- **Jordan University of Science & Technology (JUST), *University Level Committees, (2000 – 2007):***
  - Member of the Faculty of Computer & Information Technology Foundation Committee.
  - Member of the e-University Project Committee.
  - Member of the AL-Hussian Fund for Excellence: Curriculum Design, Content and Organization Committee.
  - Member of the Central Medical Committee.
  - Member of the University Library Committee.
  - Member of the Graduation Committee.
- **Jordan University of Science & Technology (JUST), *Faculty of Computer & Information Technology, (2000 – 2007):***
  - Chairman of the Scientific Research Committee.
  - Chairman of the Curriculum Planning Committee.
  - Chairman of the Library Committee.
  - Chairman of the Training Committee.
  - Chairman of the Cultural Committee.
  - Chairman of the Social Committee.
  - Chairman of the Students Affairs Committee.
  - Chairman of the Examinations Committee.
  - Member of the Department of Computer Information Systems Foundation Committee.
  - Member of the Research Development Committee.
  - Member of the Higher Studies Committee.
  - Member of the Equalizing Courses Committee for Transferred Students.
  - Member of the College Scientific Day Committee.
  - Member of the Students Evaluation Committee.
- **Jordan University of Science & Technology (JUST), *Computer Science Department, (2000–2007):***
  - Chairman of the Scientific Research Committee.
  - Chairman of the Curriculum Planning Committee.
  - Member of the Higher Studies Committee.
  - Member of the Appointment and Promotion Committee.
  - Member of the Library Committee.
  - Member of the Graduation Projects Committee.
  - Member of the Equalizing Courses Committee for Transferred Students.
  - Member of the Courses Schedule Committee.
  - Member of the Examinations Committee.
- **Jordan University of Science & Technology (JUST), *Computer Information Systems Department, (2000 – 2007):***
  - Member of the Scientific Research Committee.
  - Member of the Higher Studies Committee.
  - Member of the Appointment and Promotion Committee.
  - Member of the Curriculum Planning Committee.
  - Member of the Courses Schedule Committee.

## GRADUATE STUDENTS SUPERVISION

### Supervisor of the following M.Sc. Theses:

- [1] Laila A. Bdour, "*Routing Algorithm for Optical Chained-Cubic Tree Interconnection Network*" Department of Computer Science, The University of Jordan, 2014.
- [2] Issam G. Yousef, "*Routing Algorithm for CCT Interconnection Network*" Department of Computer Science, The University of Jordan, 2012.
- [3] Hanadi A. Al-Dreabi, "*The OTIS-Pentagon Topology*" Department of Computer Science, The University of Jordan, 2012.
- [4] Bashira A. Jaradat, "*The Load Balancing Problem in OTIS-Hypercube Interconnection Networks*", Department of Computer Science, Jordan University of Science & Technology, 2007.
- [5] Malak A. Abdullah, "*The Chained-Cubic Tree: A New Interconnection Network*", Department of Computer Science, Jordan University of Science & Technology, 2007.
- [6] Dania M. Abbadi, "*Multithreaded Iterative Deepening A\* Heuristic Search Algorithm*", Department of Computer Science, Jordan University of Science & Technology, 2006.
- [7] Mohammed Z. Zakaria, "*A Data Reduction Technique for Association Rule Mining*", Department of Computer Science, Jordan University of Science & Technology, 2006.
- [8] Yanal N. Al-Ahmed, "*A Multithreading Mergesort Algorithm using PSTL*", Department of Computer Science, Jordan University of Science & Technology, 2006.

### Co-Supervisor of the following M.Sc. Theses:

- [1] Monther Y. Lafi, "*Artificial Bee Colony-Based Test Data Generation for Path Coverage Testing*" Department of Computer Science, The University of Jordan, 2013.
- [2] Hashem J. Hasan, "*Branch Coverage Testing Using Anti-Random*" Department of Computer Science, The University of Jordan, 2012.
- [3] Hamzeh S. Eyal-Salman, "*Using Genetic Algorithm in Test Data Generation for Oracle Named Block*", Department of Computer Science, The University of Jordan, 2010.
- [4] Aiman M. Awwad, "*Digital Image Scrambling Method Based on Two Dimensional Cellular Automata: A Test of the Lambda Value*", Department of Computer Science, The University of Jordan, 2009.
- [5] Ghada M. Jaber, "*Power Aware Clustering in Mobile Ad Hoc Networks*", Department of Computer Science, The University of Jordan, 2009.
- [6] Ruby Y. Tahboub, "*Collective Communication in Optical Transposed Interconnection System Mesh Using Extended Dominating Node Approach*", Department of Computer Science, The University of Jordan, 2008.
- [7] Osama E. Elheeh, "*Software Clustering Using Weighted Usage Graph and Genetic Algorithm*", Department of Computer Science, Jordan University of Science & Technology, 2008.

## M.SC. CURRENT PROPOSALS SUPERVISION

- [1] Laila B. Yousef Al-Haj, "*Routing Algorithm for OTIS Hyper Hexa-Cell Interconnection Network*" Department of Computer Science, The University of Jordan, Amman – Jordan, (Fall 2012 / 2012).

- [1] Mohammad Z. Freaj, "*A Hybrid Approach for Resource Provisioning in Cloud Computing*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2014.
- [2] Hamzeh J. Al Jawawdeh, "*Dynamic Load Balancing Protocol for Wireless Sensor Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2013.
- [3] Ali M. Alraziqi, "*Building an Optimized MRI Brian Images Classifier Based on Hybrid Intelligent Techniques*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2012.
- [4] Esraa A. Al-Dreabi, "*Automated Detection of Breast Cancer*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2011.
- [5] Maha K. Saadeh, "*Secure Routing Protocol for Wireless Sensor*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2011.
- [6] Ahmad A. Momani, "*Improved MAC Protocol for Mobile Ad Hoc Networks*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2011.
- [7] Yasser M. Jaffal, "*Design and Implementation of a Dynamic Multithreaded Game Engine for Multicore Processors*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2010.
- [8] Ola A. Karajeh, "*Securing Wireless Sensor Networks Against Denial of Service Attacks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.
- [9] Rania A. Etoom, "*Performance Evaluation of Dynamic Load Balancing Algorithms in Distributed Computing Systems*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.
- [10] Atef M. Abu-Arida, "*Expert System for Hospitals' Multi Standard Accreditation*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.
- [11] Yacoub E. Massad, "*Performance Evaluation of Transmission Power Control (TPC) in Mobile Wireless Ad Hoc Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.
- [12] Rasha A. Beidas, "*Skin Cancer Recognition by Using Neuro-Fuzzy System*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.
- [13] Nidaa H. Al-Omari, "*Efficient Iris Recognition Using Reduced Iris Code Method*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [14] Manal A. Mizher, "*Bandwidth Provisioning Scheme for Clustered Wireless Sensor Network*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [15] Reema H. Hasan, "*Efficient Routing Technique that Maximize the Lifetime and Coverage of Wireless Sensor Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [16] Abdulaziz Y. Al-Nahari, "*Receiver-Oriented Routing Protocol for Mobile Ad Hoc Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [17] Maha S. Abdel Haq, "*A Local Intrusion Detection Routing Security Protocol*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [18] Nadeen S. Hassayn, "*Using Clusters with Probe-Based Distributed Deadlock Detection Algorithms*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [19] Wala'a H. Qutechate, "*TCP Fast Retransmit Performance Investigation Over AOMDV*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.
- [20] Hiba A. Hurani, "*Efficient Retrieval of Human Iris Code*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.
- [21] Maram Y. Bani Younes, "*Branch Prediction in Pipeline Computer System*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.



- [22] Saleh I. Salous, "*Efficient Processing of Database Join Based on Matrix Containment*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.
- [23] Rahmeh R. Al-Wahab, "*On the Enhancement of Opportunistic Auto Rate Protocol for Multi-Rate Wireless Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.
- [24] Sarah M. Alkuhlani, "*Multithreaded Instance Reduction Algorithms*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2007.
- [25] Murad M. Alaqtash, "*An Efficient Hardware Architecture for Variable Block Size Motion Estimation in H.264/AVC*" Computer Engineering Department, Jordan University of Science and Technology, Irbid – Jordan, 2007.
- [26] Hadeel G. Ammari, "*Web Usage Mining for Online Recommendation Systems*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2006.
- [27] Feras A. Mahmoud, "*Parallel Implementation of an Efficient Algorithm for the Solution Partial Differential Equations in a Cluster Computing Environment*" Mathematics and Statistics Department, Jordan University of Science and Technology, Irbid – Jordan, 2006.
- [28] Hasan K. Al-Bzoor, "*On Taylor Polynomial Solutions of Second Order Linear Partial Differential Equations*" Mathematics and Statistics Department, Jordan University of Science and Technology, Irbid – Jordan, 2006.
- [29] Shatha N. Alhasan, "*Dynamic Branch Prediction Schemes and Performances*" Computer Engineering Department, Jordan University of Science and Technology, Irbid – Jordan, 2005.
- [30] Raed S. Al-Qassas, "*A New Routing Protocol for Mobile Ad Hoc Networks*" Computer Science Department, Al aL-Bayt University, Mafraq – Jordan, 2003.
- [31] Asmaa Al-Saidi, "*Cluster-Based and Web-Based Parallel Computing*" Computer Science Department, College of Science, Sultan Qaboos University, Al-Khodh – Sultanate of Oman, 2002.

#### SELECTED GRADUATION PROJECTS SUPERVISION

- [1] *i*-Control System.
- [2] An *e*-Faculty System – Towards Full Scale Automation.
- [3] *e*-Student Services System.
- [4] Course Management System.
- [5] *e*-Learning System: Data Structures Course.
- [6] *e*-Library System.
- [7] Law Firm System.
- [8] King Abdullah University Hospital Electronic Management System.
- [9] Phone Dialer System.
- [10] *e*-Shipment System.

#### COMPETITIONS

- **Universities Robotics Competition (URC)** held at Philadelphia University (Jordan) incorporation with National Educational Center for Robotics (NECR) on **May 2011**  
**Competition Type:** Sumo Robotics  
**Supervisors:** Dr. Basel A. Mahafzah and Dr. Mosa Al-Akhras  
**Students:** Yazan W. Al-Kobari and Abdullah J. Al-Qarshi  
**Sponsored by:** IEEE and Philadelphia University – Jordan

## GRANTS

- Project Title: Mediterranean Virtual University (MVU)  
Funded by EUMEDIS – European Union (EU)  
Amount of Grant: **€21,000**
- Project Title: Mediterranean Network for Unified Distance Learning (Med Net'U)  
Funded by EUMEDIS – European Union (EU)  
Amount of Grant: **€150,000**
- Project Title: Open Distance Inter-University Synergies between Europe, Africa, and Middle East (ODISEAME)  
Funded by EUMEDIS – European Union (EU)  
Amount of Grant: **€100,000**
- Project Title: Center for High Performance Computing  
Funded by HEDP (World Bank)  
Amount of Grant: **\$225,000**
- Project Title: Distributed Modeling of Pipe Networks  
Perez-Guerrero Trust Fund – United Nations Development Programme (UNDP)  
Amount of Grant: **\$80,000**
- Project Title: An e-Faculty System – Towards Full Scale Automation  
Funded by King Abdullah II Fund for Development (KAFD) - King Abdullah II Design & Development Bureau (KADDB)  
Amount of Grant: **\$7,000**
- Project Title: Performance Evaluation of a Decoupled Multithreaded Architecture  
Funded by Jordan University of Science & Technology (JUST)  
Amount of Grant: **\$4,400**

## INTERNATIONAL & LOCAL FUNDED PROJECTS

- **Mediterranean Virtual University (MVU)** Project funded by EUMEDIS:

MVU is a collaborative venture between 11 leading institutions in the Mediterranean area and the University of Strathclyde in Scotland with Aalborg University, Denmark, building a network to collaboratively develop and deliver high quality online university courses.

MVU aims to develop a sustainable virtual university infrastructure where academic and technical expertise in e-learning can be exchanged between partners in Europe and the Mediterranean region. MVU concentrates on the development of over 50 Computer Science modules.

In this project, as a *Course Author*, I did develop an e-course titled “Computer Algorithms”.

- **Mediterranean Network of Universities (Med Net'U)** Project funded by EUMEDIS:

In the framework of the EUMEDIS Program (Euro-Mediterranean Information Society), launched by the European Commission in 1998 to enhance the development of the Euro-Mediterranean Information Society, the Network per l'Università Ovunque NETTUNO (the Italian Distance University), with 25 Euro Mediterranean partners, has been selected to implement the Med Net'U Project. NETTUNO is nowadays the only Telematic and Television University in Europe that supplies its 38 public partner universities with two satellite television channels, RAI NETTUNO SAT 1 and RAI NETTUNO SAT 2, and with an Internet-based didactic portal.

The Med Net'U Project aims at creating a Distance Euro-Mediterranean University for University and Vocational Training Learning. Among its specific objectives, Med Net'U intends to:

- Launch a process of harmonisation of the Euro-Mediterranean educational and training systems through the adoption of a common psycho-pedagogical model.
- Create a common technological platform to carry out distance teaching and learning processes.

In this project, as a *Scientific Committee Member* and as a *Course Author*, I did record on TV a course titled “Computer Architecture”. This course consists of 25 lectures and each lecture is 40 minutes.

- **ODISEAME** Project funded by EUMEDIS:

ODISEAME establishes a network of Euro-Mediterranean higher education institutions that cooperates together in the creation and distribution of contents for educational purposes. In these organized virtual learning experiences, students and teachers participate from different countries.

In this project, as a *Course Author*, I did develop an e-course titled “Data Structures”.

- **Center for High Performance Computing** funded by HEDP (World Bank):

The goal of this project is to establish a center for high performance computing in the campus of Jordan University of Science & Technology with the following objectives:

- To improve the quality of teaching by equipping the School with a suitable infrastructure to support high-performance computing related courses; thus providing the local and international market with high-caliber graduates in related areas.
- To improve the quality of research relevant to Parallel and Distributed Systems, Net-Centric Computing, and Multimedia, that could be beneficial to the local and international industry.

- **Distributed Modeling of Pipe Networks** Perez-Guerrero Trust Fund – United Nations Development Programme (UNDP):

The objective of this project is to develop distributed algorithms that will make use of cluster computing technologies to reduce the cost associated with pipe networks analysis, enabling the acceleration of tasks such as planning, operation scheduling, quality control, and leakage control in pipe networks.

- **An e-Faculty System – Towards Full Scale Automation** Project funded by King Abdullah II Fund for Development (KAFFD) – King Abdullah II Design & Development Bureau (KADDB):

The e-Faculty system aims to implement a full scale automation system to convert some of the manual and formal paper-based forms to electronic forms. Basically, this e-faculty system can be applied in practice in any faculty at any university with the following e-services:

- Electronic Forms
- Archiving
- Bookkeeping

- **Performance Evaluation of a Decoupled Multithreaded Architecture** funded by Jordan University of Science & Technology (JUST):

This research project involved the evaluation of innovative multithreaded computer architecture. Several optimizations to our architecture and compiler are investigated and the potential of a decoupled non-blocking multithreaded system in a larger context utilizing SPEC-95 benchmarks and embedded applications are evaluated. Our investigation focused on three categories: i) architectural optimizations, ii) compiler optimizations and iii) superscalar implementations.

## PROFESSIONAL COURSES CERTIFICATES

- New York Institute of Technology (NYIT), *Classroom Discipline*, May 2005.
- New York Institute of Technology (NYIT), *American Teaching Methods*, January 2005.
- UNESCO, *ICDL Advanced in Word Processing*, April 2003.
- UNESCO, *ICDL Advanced in Spreadsheet*, April 2003.
- UNESCO, *International Computer Driving Licence (ICDL)*, October 2001.
- Jordan University of Science & Technology (JUST), *Classroom Communication and Interaction in Higher Education*, June 2001.
- Rational University, *Object-Oriented Analysis & Design Using the UML*, June 2001.
- Rational University, *Fundamentals of Rational Rose*, May 2001.
- Rational University, *Principles of Object Technology*, May 2001.
- Jordan University of Science & Technology (JUST), *Technology of Education and Evaluation*, September 1999.

## COURSE WORK

<b>Computer Science Courses</b>	<b>Computer Engineering Courses</b>
Computer Skills	Boolean Algebra and Logic Design
Programming in C	Advanced Logic Circuits
Programming in C++	Digital Computer Design
Information Technology	Microcomputers
Programming Languages	Architectures for Parallel Processing
Formal Languages and Automata Theory	Analytic Models of Interconnection Networks
Design and Analysis of Algorithms	Parallel Processing Design
Operating Systems	Parallel Computation
Computer Networks	<b>Electrical Engineering Courses</b>
Computer Architectures	Communication Theory
Database Systems	Random Signals and Noise
Artificial Intelligence	Electrical Circuits
<b>Mathematics Courses</b>	Electronics
Graph Theory	Solid State Fundamentals
Combinatorial Enumeration	Analytical Methods for Continuous Time Systems
Fourier Analysis	Analytical Methods for Multivariable and Discrete
Complex Analysis	Time Systems

## TAUGHT COURSES

<b>Undergraduate Courses (B.S.)</b>	<b>Graduate Courses (M.S. &amp; Ph.D.)</b>
Theory of Algorithms	Parallel and Distributed Computing
Operating Systems	Parallel Architecture
Computer Organization	Advanced Algorithms
Computer Architecture	Operating Systems & Distributed Systems
Computer Networks	
Parallel Processing	
Boolean Algebra and Logic Design	
Information Technology	
Computer Skills	
Programming in C	
Programming in C++	

## COMPUTER SKILLS

<b>Operating Systems</b>	<b>Applications &amp; Tools</b>
MS-DOS	Message Passing Interface (MPI) Library
Windows 95, 98, 00, NT, XP, & Vista	Network II.5 Simulator
Linux and Unix (Solaris)	Comnet III (Networks Simulator)
MAC O.S.	Electronics Workbench (Circuits Simulator)
<b>Programming Languages</b>	GSview
Assembly 680X0	Adobe Acrobat Reader / Writer
C/C++	Emacs (Text Editor)
Fortran 77	Jove (Text Editor)
Perl	Pine, Pico, & VI (Text Editors)
Prolog	Microsoft Office

## WORK LOAD PER WEEK

<b>The University of Jordan (2007 – Present)</b>						
<i>Academic Semester</i>	<i>Teaching Load (Credit Hours)</i>	<i>Number of Courses Taught</i>	<i>Course Coordination Load (Credit Hours)</i>	<i>M.Sc. Theses Supervision Load (Credit Hours)</i>	<i>Number of Graduate Students Supervised</i>	<i>Total Credit Hours Load per Semester</i>
Fall 2013/2014	16.5	6	1	1.5	2	19
Spring 2013/2104	10.5	4	1	1.5	2	13
Summer 2013/2014	6	2	0	1.5	2	7.5
Fall 2012/2013	18	6	1	2	3	21
Spring 2012/2013	15	5	1	2	3	18
Summer 2012/2013	0	0	0	2	3	2
Fall 2011/2012	15	5	0	2.5	3	17.5
Spring 2011/2012	15	5	1	0.5	3	16.5
Summer 2011/2012	6	2	0	1	1	7
Fall 2010/2011	15	5	0	2.5	3	17.5
Spring 2010/2011	12	4	1	3.5	4	16.5
Summer2010/2011	6	2	0	0	0	6
Fall 2009/2010	12	4	1	2.5	4	15.5
Spring 2009/2010	12	4	1	2	3	15
Summer 2009/2010	6	2	0	0.5	1	6.5
Fall 2008/2009	12	4	1	2	4	15
Spring 2008/2009	18	6	1	2	4	21
Summer 2008/2009	6	2	0	0	0	6
Fall 2007/2008	12	4	1	1	2	14
Spring 2007/2008	18	6	1	1.5	3	20.5
Summer 2007/2008	6	2	0	0	0	6

## WORKSHOPS & TRAINING

- Med Net'U Project: Recording Computer Architecture Course on TV (25 lectures, each 40 minutes) at Nettuno, Rome – Italy, February 2006.
- Med Net'U Project: Scientific University Committee Meeting, Politecnico Di Torino, Turin – Italy, December 2005.
- Mediterranean Virtual University (MVU) Tutor Workshop, University of Cyprus, Nicosia – Cyprus, June 2005.
- Workshop on Classroom Discipline, New York Institute of Technology (NYIT), Amman – Jordan, May 2005.
- MVU Show and Tell Workshop, Sabanci University, Istanbul – Turkey, April 2005.
- MVU Content Provider and Developer Workshop, Jordan University of Science & Technology (JUST), Irbid – Jordan, February 2005.

- MVU Tutor Workshop, Ain Shams University, Cairo – Egypt, January 2005.
- MVU Content Provider Developer Workshop, Aalborg – Denmark, This workshop run jointly by the University of Strathclyde, Glasgow – Scotland and the University of Aalborg – Denmark, December 2004.
- Med Net’U Project: Scientific University Committee Meeting, Universite’ De Cadi Ayyad, Marrakech – Morocco, September 2004.
- Mediterranean Virtual University (MVU) Project: 1<sup>st</sup> Project Meeting, Crowne Plaza, Amman – Jordan, September 2004.
- Academy Conference, Middle East – Educating Tomorrow’s Networking Professionals: Cisco Systems, Beirut – Lebanon, April 2004.
- Med Net’U Project: Scientific University Committee Meeting, Paris – France, at the Senate, January 2004.
- Med Net’U Project: Scientific University Committee Meeting, Ministry of Higher Education – Syrian Virtual University (SVU), Damascus – Syria, July 2003.
- The International Computer Driving Licence (ICDL) Advanced Workshop, Amman – Jordan, April 2003.
- Med Net’U Project: Scientific University Committee Meeting, Roma – Italy, Consorzio Nettuno, December 2002.
- CCNA Instructor Course, Jordan University of Science & Technology (JUST) – Cisco Academy, Irbid – Jordan, July 2001.
- The 25 Workshop in Educational Technology: Classroom Communication and Interactive in Higher Education, Jordan University of Science & Technology (JUST), Irbid – Jordan, June 2001.
- Course Title: Object – Oriented Analysis & Design using the UML, CEB, Amman – Jordan, June 2001.
- Course Title: Fundamentals of Rational Rose, Rational University, CEB, Amman – Jordan, May 2001.
- Course Title: Principles of Object Technology, Rational University, CEB, Amman – Jordan, May 2001.
- The 18 Workshop in Technology of Education and Evaluation, Jordan University of Science & Technology (JUST), Irbid – Jordan, September 1999.

## PUBLICATIONS

- [28] **Basel A. Mahafzah**, “Performance evaluation of parallel multithreaded A\* heuristic search algorithm” *Journal of Information Science*, SAGE, United Kingdom, Vol. 40(3), pp. 363-375, June 2014.
- [27] Hassan Najadat, Yasser M. Jaffal, **Basel A. Mahafzah**, and Safwan S. Al-Omari, “A new fine-grained multithreaded game engine approach” *International Journal of Modelling and Simulation*, ACTA Press, Canada, Vol. 34(1), pp. 15-22, April 2014.
- [26] Sherenaz W. Al-Haj Baddar and **Basel A. Mahafzah**, “Bitonic sort on a chained-cubic tree interconnection network” *Journal of Parallel and Distributed Computing*, Elsevier, USA, Vol. 74(1), pp. 1744-1761, January 2014.
- [25] Mohammad A. Alshraideh, Hashim J. Hasan, and **Basel A. Mahafzah**, “Branch coverage testing using anti-random technique” *i-manager’s Journal on Software Engineering*, i-Manager Publications, India, Vol. 8(2), pp. 7-20, October-December 2013.
- [24] **Basel A. Mahafzah**, “Performance assessment of multithreaded quicksort algorithm on simultaneous multithreaded architecture” *Journal of Supercomputing*, Springer, New York, USA, Vol. 66(1), pp. 339-363, October 2013.

- [23] Amer F. Al-Badarneh, Abdullah S. Al-Alaj, and **Basel A. Mahafzah**, “Multi Small Index (MSI): A spatial indexing structure” *Journal of Information Science*, SAGE, United Kingdom, Vol. 39(5), pp. 643-660, October 2013.
- [22] Mohammad A. Alshraideh, Ezdehar Jawabreh, **Basel A. Mahafzah**, and Heba M. AL Harahsheh, “Applying genetic algorithms to test JUH DBs exceptions” *International Journal of Advanced Computer Science and Applications*, The Science and Information Organization, New York, USA, Vol. 4(7), pp. 8-20, July 2013.
- [21] Mohammad A. Alshraideh, **Basel A. Mahafzah**, Hamzeh S. Eyal Salman, Imad Salah, “Using genetic algorithm as test data generator for stored PL/SQL program units” *Journal of Software Engineering and Applications*, Scientific Research Publishing, Irvine CA, USA, Vol. 6(2), pp. 65-73, February 2013.
- [20] Abdel Latif Abu Dalhoum, **Basel A. Mahafzah**, Aiman Ayyal Awwad, Ibraheem Aldhamari, Alfonso Ortega, and Manuel Alfonseca, “Digital image scrambling using 2D cellular automata” *IEEE MultiMedia*, IEEE Computer Society, Los Alamitos, CA, USA, Vol. 19(4), pp. 28-36, October 2012.
- [19] **Basel A. Mahafzah**, Azzam Sleit, Nesreen A. Hamad, Elham F. Ahmad, and Tasneem M. Abu-Kabeer, “The OTIS hyper hexa-cell optoelectronic architecture” *Computing*, Springer Wien, Austria, Vol. 94(5), pp. 411-432, May 2012.
- [18] **Basel A. Mahafzah**, Mohammad Alshraideh, Tasneem M. Abu-Kabeer, Elham F. Ahmad, and Nesreen A. Hamad, “The optical chained-cubic tree interconnection network: Topological structure and properties” *Computers & Electrical Engineering*, Pergamon-Elsevier, England, Vol. 38(2), pp. 330-345, March 2012.
- [17] **Basel A. Mahafzah**, “Message passing programs' measured characteristics: Performance analysis and evaluation” LAP LAMBERT Academic Publishing, Germany, 2011, ISBN: 978-3-8465-1384-2
- [16] Mohammad Alshraideh, **Basel A. Mahafzah**, and Saleh Al-Sharaeh, “A multiple-population genetic algorithm for branch coverage test data generation” *Software Quality Journal*, Springer, New York, USA, Vol. 19(3), pp. 489-513, September 2011.
- [15] Malak Abdullah, Emad Abuelrub, **Basel A. Mahafzah**, “The chained-cubic tree interconnection network” *International Arab Journal of Information Technology*, Zarka Private University, Jordan, Vol. 8(3), pp. 334-343, July 2011.
- [14] **Basel A. Mahafzah**, “Parallel multithreaded IDA\* heuristic search: Algorithm design and performance evaluation” *International Journal of Parallel, Emergent and Distributed Systems*, Taylor & Francis, United Kingdom, Vol. 26(1), pp. 61-82, February 2011.
- [13] **Basel A. Mahafzah** and Bashira A. Jaradat, “The hybrid dynamic parallel scheduling algorithm for load balancing on chained-cubic tree interconnection networks” *Journal of Supercomputing*, Springer, New York, USA, Vol. 52(3), pp. 224-252, June 2010.
- [12] **Basel A. Mahafzah**, Ruby Y. Tahboub, and Omar Y. Tahboub, “Performance evaluation of broadcast and global combine operations in all-port wormhole-routed OTIS-Mesh interconnection networks” *Cluster Computing*, Springer, New York, USA, Vol. 13(1), pp. 87-110, March 2010.
- [11] Mohammad Alshraideh, Leonardo Bottaci, and **Basel A. Mahafzah**, “Using program data-state scarcity to guide automatic test data generation” *Software Quality Journal*, Springer, New York, USA, Vol. 18(1), pp. 109-144, March 2010.
- [10] **Basel A. Mahafzah**, Amer F. Al-Badarneh, and Mohammed Z. Zakaria, “A new sampling technique for association rule mining” *Journal of Information Science*, SAGE, United Kingdom, Vol. 35(3), pp. 358-376, June 2009.
- [9] **Basel A. Mahafzah** and Bashira A. Jaradat, “The load balancing problem in OTIS-Hypercube interconnection networks” *Journal of Supercomputing*, Springer, New York, USA, Vol. 46(3), pp. 276-297, December 2008.



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- [7] **Basel A. Mahafzah** and Eyas El-Qawasmeh, “Verification of communication’s behavior in parallel numerical benchmarks” *Proceedings of the Applied Telecommunication Symposium 2002 (ATS 02)*, pp. 77-82, The Society for Modeling & Simulation International (SCS), San Diego, California, USA, April 14-18, 2002.
- [6] **Basel A. Mahafzah**. “Statistical measurements of message sizes on parallel computational fluid dynamics programs.” *The 2001 International Arab Conference on Information Technology (ACIT 2001)*, Al Shaeb Press, pp. 182-187, Irbid, Jordan, November 2001.
- [5] Eyas El-Qawasmeh and **Basel A. Mahafzah**, “Poorly designed features of C++ constructors”, *Journal of Object Oriented Programming (JOOP)*, Vol. 13(11), pp. 4-10, March 2001.
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- [3] **Basel A. Mahafzah** and William E. Cohen, “Verification of the burst queuing system model for parallel programs”, *The 1999 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1999)*, CSREA Press, Vol. 5, pp. 2398-2402, Monte Carlo, Las Vegas, Nevada, USA, June 1999.
- [2] **Basel A. Mahafzah**, “Applying message passing program’s measured characteristics to queuing models”, Ph.D. Thesis, Electrical & Computer Engineering Department, The University of Alabama in Huntsville, Huntsville, Alabama, USA, May 1999.
- [1] William E. Cohen and **Basel A. Mahafzah**, “Statistical analysis of message passing programs to guide computer design,” *Proceedings of the Thirty-First Annual Hawaii International Conference on System Sciences (HICSS 1998)*, IEEE Computer Society, Vol. 7, pp. 544-553, Kohala Coast, Hawaii, USA, January 1998.

