CURRICULUM VITAE

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Home Page (PSUT)	Prof. Basel Mahafzah | PSUT
Home Page (JU)	http://computer.ju.edu.jo/Lists/FacultyAcademicStaff/DispDept_Staff.aspx?ID=14&dept=Computer Science&deptName=Computer Science
Google Scholar Citations	http://scholar.google.com/citations?user=cjUfPpUAAAAJ&hl=en
Scopus Author ID	https://www.scopus.com/authid/detail.uri?authorId=23967833700
Linked in Profile	https://www.linkedin.com/in/basel-mahafzah-bb9a8112
ResearchGate Profile	http://www.researchgate.net/profile/Basel_Mahafzah?ev=hdr_xprf
ORCID iD	http://orcid.org/0000-0003-3979-1076
Stanford List	Mendeley Data - Data for "Updated science-wide author databases of standardized citation indicators"

OVERALL PUBLICATIONS STATISTICS – SEPTEMBER 2022

	Citations	h-index	i10-index	Documents
Scopus	633	17	20	39
Google Scholar	849	19	25	51
ResearchGate	768	18	-	-

Indexed in ISI & JCR	24 Publications
Indexed in Scopus	36 Publications
Total Publications including Conferences and Books	53

PERSONAL INFORMATION

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

CURRENT POSITION

Full Professor at Computer Science Department, King Abdullah II School of Information Technology, The University of Jordan, Amman – Jordan.

- Appointed Date at The University of Jordan: September 9 / 2007.
- Title (Full Professor) Earned Date: March 7 / 2015.

EDUCATION

- **Ph.D. –** The University of Alabama in Huntsville (UAH), May 23 / 1999.
  Major: Computer Engineering.
  First Minor: Computer Science.
  Second Minor: Mathematical Sciences.
- **Master of Science** – The University of Alabama in Huntsville (UAH), December 18 / 1994.
  Major: Computer Science.
  Minor: Computer Engineering.
- **Bachelor of Science in Engineering –** The University of Alabama in Huntsville (UAH).
  Major: Computer Engineering.
- **Bachelor of Science** – Mu'tah University, Jordan, February 1991.
  Major: Computer Science.

HONORS & AWARDS

- As a researcher and scientist, **Stanford University** has recently released (October 2020) a list that represents the **top 2%** of the most-cited scientists in various disciplines, where I was among this list of scientists in the domain of Applied Sciences and the field of Information & Communication Technologies and subfields of Distributed Computing and Artificial Intelligence & Image Processing.
  Stanford List: Mendeley Data - Data for "Updated science-wide author databases of standardized citation indicators"

- Symbolic Award by the University of Jordan for the following papers published in ISI Web of Knowledge Database – Journal Citation Reports (JCR):

  o Parallel heuristic local search algorithm on OTIS hyper hexa-cell and OTIS mesh of trees optoelectronic architectures" Applied Intelligence, Springer, New York, USA, Vol. 49(2), pp. 661-688, 2019.

  o Solving traveling salesman problem using parallel repetitive nearest neighbor algorithm on OTIS-Hypercube and OTIS-Mesh optoelectronic architectures, Journal of Supercomputing, Springer, New York, USA, Vol. 74(1), pp. 1-36, 2018.

  o Broadcast communication operations for hyper hexa-cell interconnection network, Telecommunication Systems, Springer, New York, USA, Vol. 67(1), pp. 73-93, 2018.

  o A robotic intelligent wheelchair system based on obstacle avoidance and navigation functions, *Journal of Experimental & Theoretical Artificial Intelligence*, Taylor & Francis, United Kingdom, Vol. 27(4), pp. 471-482, July 2015.

- o 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.

- o Multi Small Index (MSI): A Spatial Indexing Structure, *Journal of Information Science*, SAGE, United Kingdom, Vol. 39(5), pp. 643-660, October 2013.

- o Digital Image Scrambling Using 2D Cellular Automata, *IEEE MultiMedia*, IEEE Computer Society, Los Alamitos, CA, USA, Vol. 19(4), pp. 28-36, October 2012.

- o The OTIS hyper hexa-cell optoelectronic architecture, *Computing*, Springer Wien, Austria, Vol. 94(5), pp. 411-432, May 2012.

- o 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.

- o 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 Award (2011) – Distinguished Researcher.

- Al-Hussein Prize for Excellence for achieving excellence in the computer science field and ranking number one (*Jordan University of Science & Technology*) in Jordan by the British QAA, 2004.

- 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.

EMPLOYMENT & POSITIONS HELD

- **Vice Dean for Academic and Administrative Affairs**, King Abdullah II of Information Technology, The University of Jordan, September 2020 to September 2021.

- **IT Director**, King Abdullah University Hospital, Jordan University of Science & Technology (JUST), September 2006 to 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.

RESEARCH INTERESTS

Computational Intelligence, Computational Data Science, Heuristic & Metaheuristic Algorithms, Optimization Problems, High-Performance Computing, Parallel & Distributed Computing, Optoelectronic Architectures, Interconnection Networks, Performance Analysis & Evaluation, Theory of Algorithms, Artificial Intelligence, Big Data, and Data Mining.

STATEMENT OF RESEARCH PHILOSOPHY

My methodological and theoretical research, as well as a considerable portion of my applied and collaborative work, addresses computational intelligence and high-performance computing. An innovative contribution of my work is establishing, adapting, and customizing heuristic and metaheuristic approaches for solving several optimization problems over various high-performance architectures. One example of my innovative work is the establishment of a new parallel heuristic local search algorithm and a new parallel repetitive nearest-neighbor algorithm for solving the traveling salesman problem over various optoelectronic architectures. Another example of my work is the establishment of a parallel multithreaded A* heuristic search algorithm and a parallel multithreaded iterative deepening A* heuristic search algorithm for solving the 15-puzzle problem and vertex cover problem. Additionally, several metaheuristics approaches, such as genetic algorithm, chemical reaction optimization, grey wolf optimizer, and humpback whale optimization, have been adapted and customized to solve several optimizations problems, such as finding a maximum independent set in big graphs, finding strongly connected components in directed big graphs, and task scheduling in cloud computing. The performance of these algorithms has been evaluated analytically and experimentally in terms of run time, speedup, efficiency, cost, error rate, and accuracy.

I am a strong advocate of multi-disciplinary research. For example, in computational intelligence, high-performance computing, big data, and operation research; I have seen parallel and distributed algorithms for big data, such as sorting, searching, job scheduling, and load balancing spreading and expanding while creating new challenges from the point of view of performance analysis and evaluation on cloud computing and various interconnection networks and optoelectronic architectures. Moreover, I have been involved in many research areas including artificial intelligence, genetic algorithms, big data, and data mining. For example, in big data and data mining, I presented a review on the matrix multiplication of big data using MapReduce and a new sampling technique for association rule mining.

My research works have been published in well-known international refereed indexed specialized journals; such as Knowledge-Based Systems, Applied Intelligence, Soft Computing, Journal of Experimental & Theoretical Artificial Intelligence, Journal of Information Science, Journal of Supercomputing, Cluster Computing, Telecommunication Systems, Journal of Parallel and Distributed Computing, Computers & Electrical Engineering, International Journal of Parallel, Emergent and Distributed Systems, Software Quality Journal, and IEEE MultiMedia, where these journals are published by well-known publishers, such as Springer, Elsevier, Taylor & Francis, Sage, and IEEE Computer Society. All these journals are indexed by ISI Web of Knowledge, Journal Citation Report (JCR), SCOPUS, Science Direct, Google Scholar, and many more.

*Finally, as a researcher and scientist, **Stanford University** has recently released (October 2020) a list that represents the **top 2%** of the most-cited scientists in various disciplines, where I was among this list of scientists in the domain of applied sciences and the field of information & communication technologies and sub-fields of distributed computing and artificial intelligence & image processing.*

STATEMENT OF TEACHING PHILOSOPHY

My desire is to engage in challenges and inspire the growth of knowledge in my students. Over the past twenty-two years, I taught and worked with many undergraduate and graduate students as a teacher, senior project supervisor, research supervisor, and theses and dissertations supervisor. I enjoy transferring knowledge and skills to my students through technology to achieve the course's intended learning outcomes. It is my goal to share with students the awe and excitement, as well as the dedication and hard work that comes along with using research tools to ask and answer questions and build scenarios and activities. In the senior-level and graduate courses, I emphasize teamwork, soft skills, and hands-on skills through group projects, software documentation, technical and progress reports, term papers, and presentations.

Additionally, I taught several undergraduate and graduate courses, where I can teach artificial intelligence, computational intelligence, big data, data mining, theory of algorithms, operating systems, distributed systems, parallel and distributed computing, high-performance computing, parallel processing, parallel architectures, computer networks, computer organization and architecture, and other undergraduate and graduate related courses.

ACADEMIC EXPERIENCE

- **Full Professor,** Computer Science Department, The University of Jordan, March 7 / 2015 till Present.

  Taught courses: Theory of Algorithms, Computer Organization, Operating Systems, Parallel Processing, Computer Skills (C++), and Graduation Project as undergraduate courses; and Parallel and Distributed Computing, Theory of Algorithms, and Parallel Architecture as M.S. graduate courses; also Operating Systems and Distributed Systems, Computer Algorithms, and Parallel Processing as Ph.D. graduate courses.

- **Associate Professor,** Computer Science Department, The University of Jordan, March 7 / 2011 till March 6 / 2015.

  Taught courses: Theory of Algorithms, Computer Organization, Operating Systems, Parallel Processing, and Graduation Project as undergraduate courses, also Parallel and Distributed Computing, Theory of Algorithms, 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 POSITIONS

- **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.

EDITORIAL & REVIEWING ACTIVITIES

- **Editorial Board Member**, Recent Advances in Computer Science and Communications, Bentham Science, Sharjah, United Arab Emirates, October 2019.
  https://www.benthamscience.com/journals/recent-advances-in-computer-science-and-communications/editorial-board/

- **Co-Editor**, The 2017 International Conference on Wireless Communications, Networking and Applications [WCNA 2017], July 7-9, 2017, Shenzhen, China. http://www.wcna2017.org/

- **Editorial Board Member**, Jacobs Journal of Electronics and Communications, Jacobs Publishers, Austin, Texas, USA, 2016.

- **Steering Committee Member**, The 3rd International Conference on Information and Communication Systems [ICICS 2012], held at Jordan University of Science & Technology (JUST), Irbid – Jordan, April 2012.

- **External Promotion Reviewer**, King Abdulaziz University, Department of Academic Council's Affairs, Jeddah, Kingdom of Saudi Arabia, 2016.

- **Research Project Reviewer**, Scientific Research Support Fund, Amman – Jordan, July 2016.
  http://www.srf.gov.jo

- **Technical Reviewer**, Proposed Research Projects by Scientific Research Council, Ministry of Higher Education, State of Palestine, August 2013.

- **Technical Committee Member/Reviewer for the Following International Journals:**
  o Journal of Supercomputing – Springer, USA
  o Journal of Parallel and Distributed Computing, Elsevier, USA
  o Cluster Computing – Springer, USA
  o International Journal of Parallel, Emergent and Distributed Systems – Taylor and Francis, UK
  o Parallel Algorithms and Applications – Taylor and Francis, UK
  o IEEE Transactions on Very Large Scale Integration (VLSI) Systems – IEEE Circuits and Systems Society, IEEE Computer Society, and IEEE Solid-State Circuits Society, USA

- Soft Computing – Springer, USA

- Artificial Intelligence Review – An International Science and Engineering Journal – Springer, Switzerland

- Knowledge-Based Systems – Elsevier, USA

- Applied Soft Computing – Elsevier, USA

- Computers & Electrical Engineering – Pergamon-Elsevier, England

- Engineering Science and Technology, an International Journal (JESTECH) – Elsevier, USA

- Information Processing Letters – Elsevier, USA

- Expert Systems With Applications – Elsevier, USA

- Future Generation Computer Systems – Elsevier, USA

- Journal of Information Security and Applications – Elsevier, USA

- Journal of Information Science – Sage, UK

- EURASIA Journal of Mathematics, Science and Technology Education – Modestum Academic Publisher, London, UK

- Arabian Journal for Science and Engineering – Springer, USA

- IETE Technical Review – Taylor & Francis, UK

- International Journal of Cloud Applications and Computing (IJCAC) – IGI Global, USA

- International Journal of Information Technology and Web Engineering – IGI Global, USA

- Mathematics – Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland

- Materials – Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland

- Symmetry – Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland

- Sensors – Multidisciplinary Digital Publishing Institute (MDPI), Basel, Switzerland

- AIMS Mathematics – AIMS Press, USA

- International Journal of Information Technology & Decision Making (IJITDM) – World Scientific, Singapore

- Journal of Next Generation Information Technology (JNIT) – Korea

- Recent Patents on Computer Science – Bentham Science Publishers, UAE

- International Arab Journal of Information Technology (IAJIT) – Jordan

- Jordanian Journal of Computers and Information Technology – Jordan

- Zarqa Journal for Research and Studies – Jordan

- **Technical Program Committee (TPC) Member for the Following International Conferences:**

  - 2022 4th International Conference on Artificial Intelligent and Computer Science [AICS 2022], Beijing, China, July 30-31, 2022. https://www.aicsconf.cn/

  - 2021 3rd International Conference on Artificial Intelligent and Computer Science [AICS 2021], Beijing, China, July 29-31, 2021.

  - Artificial Intelligence and Application Technologies [AIAT 2020], Tokyo, Japan, December 26-29, 2020. AIAT 2020

  - The 2019 International Conference on Artificial Intelligence and Computer Science [AICS2019], Wuhan, Hubei, China, July 12-13, 2019. http://www.aics2019.org/index.html

  - The 2019 International Conference on Artificial Intelligence Technologies and Applications [ICAITA 2019], Qingdao, China, July 5-7, 2019. http://www.icaita.cn/

- The 9th Annual International Conference of Information and Communication Technology [ICICT2019], Nanning, Guangxi, China, January 11-13, 2019. http://www.icictconf.org/menu/home

- 5th Annual International Conference on Computer Science and Applications [CSA2018], Chongqing, China, on November 23-25, 2018. http://www.csa2018.org/

- International Conference on Engineering & MIS 2018 (ICEMIS2018), Altınbaş University, Istanbul, Turkey, June 19-21, 2018. http://www.iares.net/Conference/ICEMIS2018

- International Conference on Advanced Technologies, Computer Engineering and Science (ICATCES), Safranbolu, Turkey, May 11-13, 2018. http://icatces.org/paper.php

- 4th Annual International Conference on Computer Science and Applications [CSA2017], Beijing, China, on December 8-10, 2017. http://www.csa2017.org/

- The 2017 International Conference on Cloud Technology and Communication Engineering [CTCE2017], Guilin, China, August 18-20, 2017. http://www.ctce2017.org/

- The 2017 2nd International Conference on Artificial Intelligence and Computer Engineering [AICE2017], Xiamen, China, June 23-25, 2017. http://www.aice2017.org

- The 4th International Workshop on Machine Learning and Data Mining for Sensor Networks [MLDM-SN], Madeira, Portugal, May 16-19, 2017. http://mldmsn-1084.appspot.com/index.html

- The 2017 International Conference on Computing Intelligence and Information System [CIIS2017], Nanjing, China, April 21-23, 2017. http:www.ciis2017.org

- The 3rd Annual International Conference on Network and Information Systems for Computers [ICNISC2017], Shanghai, China, April 14-16, 2017. http://www.icnisc2017.org

- The 23rd IEEE International Conference on High Performance Computing, Data, and Analytics [HiPC 2016], Hyderabad, India, December 19-22, 2016.

- 2016 International Conference on Artificial Intelligent and Computer Science [AICS 2016], Shenzhen, China, November 25-27, 2016. http://www.aics2016.org

- 2nd Annual International Workshop on Wireless Communication and Network [IWWCN2016], Shenzhen, Guangdong, China, October 21-23, 2016. http://www.iwwcn2016.org/

- International Computer Sciences and Informatics Conference [ICSIC 2016], Amman Arab University, Amman – Jordan, January 2016.

- 2015 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies [AEECT], Dead Sea, Jordan, November 2015.

- The 2nd International Workshop on Machine Learning and Data Mining for Sensor Networks [MLDM-SN], London, UK, June 2015.

- The 2013 IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies [AEECT], The University of Jordan, Amman – Jordan, December 2013.

- The First International Conference on Cloud Computing [ICCC'13], held at Princess Sumaya University for Technology, Amman – Jordan, April 2013.

- The Pan Arab Regional Cyber Security Day 2011, held at the University of Jordan, Amman – Jordan, 2011.

- IEEE Jordan Conference on Applied Electrical Engineering and Computing Technologies 2011 [AEECT 2011]. http://ewh.ieee.org/r8/jordan/AEECT2011/

- The International Arab Conference of e-Technology [IACe-T], (2008 – Present). http://www.iace-t.org/callforpaper.html

- The International Arab Conference on Information Technology [ACIT], (2000 – Present). http://acit2k.org/ACIT/

- ACS / IEEE International Conference on Computer Systems and Applications [AICCSA].

- The International Conference on Computational Aspects and Their Applications in Electrical Engineering [CATAEE].

CONSULTATIONS, CHAIRING & COMMITTEES MEMBERSHIP

- **Committee Member:** Technical Committee for Education and Informatics, The Higher Council for Science and Technology, Amman – Jordan, November 2021 till present.

- **Program Committee Member:** 1st ICOBL: The First International Conference on Online and Blended Learning. The University of Jordan, Amman – Jordan, August 24-26, 2021.

- **Committee Member:** Arbitration Committee for Innovation and Scientific and Technological Creativity Award, Scientific Research and Support Fund (SRSF), Amman – Jordan, (October 2017).

- **Committee Member:** Communications and Information Technology Committee, Scientific Research and Support Fund (SRSF), Amman – Jordan, (June 2017).

- **Committee Member**: Talal Abu-Ghazaleh Knowledge Forum (TAG-KF), Knowledge Economy and Social Justice Community Economy, Amman – Jordan, (August 2016).

- **Committee Member**: Qualification University Examination for Computer Science, Higher Education Accreditation and Quality Assurance Commission, Amman – Jordan, (March 2015).

- **Steering and Supervision Committee Member on Authoring School Textbooks**, Minister of Education, Amman – Jordan, (September 2015).

- **Chair SEPADS Session: Parallel and Distributed Systems**, 14th International Conference on Software Engineering, Parallel and Distributed Systems (SEPADS '15), Dubai – United Arab Emirates, (February 2015).

- **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

- **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):
  o Member of Higher Studies Committee (2020 – 2021).
  o Member of Developing the Content of a University Course (Entrepreneurship, Innovation and Scientific Research Course), (June – August 2021).
  o Chairman of the Software and Websites Development Committee.
  o Member of the e-Learning Committee.

- **The University of Jordan**, *King Abdullah II School of Information Technology*, (2007 – Present):
  - Member of the School Board.
  - Member of the Strategic Plan Committee.
  - Member of the Appointment and Promotion Committee.
  - Member of the Higher Studies Committee.
  - Member of the Scientific Research, Conferences, Seminars, and Library 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 Qualifying Examination for Ph.D. Students 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 Department Board.
  - 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 Strategic Plan Committee.
  - Member of the Curriculum Planning Committee.
  - Member of the Seminars and Expositions Committee.
  - Member of the Accreditation and Quality Assurance Committee – ABET.
  - 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.
  - Member of the Students Union Elections Supervision 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.

- o Chairman of the Social Committee.
- o Chairman of the Students Affairs Committee.
- o Chairman of the Examinations Committee.
- o Member of the Faculty Board.
- o Member of the Department of Computer Information Systems Foundation Committee.
- o Member of the Research Development Committee.
- o Member of the Higher Studies Committee.
- o Member of the Courses Equalization Committee.
- o Member of the College Scientific Day Committee.
- o Member of the Students Evaluation Committee.

- **Jordan University of Science & Technology (JUST)**, *Computer Science Department*, (2000–2007):
  - o Chairman of the Scientific Research Committee.
  - o Chairman of the Curriculum Planning Committee.
  - o Member of the Department Board.
  - o Member of the Higher Studies Committee.
  - o Member of the Appointment and Promotion Committee.
  - o Member of the Library Committee.
  - o Member of the Graduation Projects Committee.
  - o Member of the Equalizing Courses Committee for Transferred Students.
  - o Member of the Courses Schedule Committee.
  - o Member of the Examinations Committee.

- **Jordan University of Science & Technology (JUST)**, *Computer Information Systems Department*, (2000 – 2007):
  - o Member of the Department Board.
  - o Member of the Scientific Research Committee.
  - o Member of the Higher Studies Committee.
  - o Member of the Appointment and Promotion Committee.
  - o Member of the Curriculum Planning Committee.
  - o Member of the Courses Schedule Committee.

GRADUATE STUDENTS' SUPERVISION

Ph.D. Dissertations - Supervised:

[1] Inas I. Abuqaddom "*Anti-Vanishing Gradient Descent Optimization Algorithm for Very Deep Neural Networks*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2021.

[2] Ahmad Bany Doumi "*A New Hybrid Approach for Recognizing Faces Under Occlusions and Common Variations*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2021.

[3] Mohammad Asmaran "*Chemical Reaction Optimization for Finding Maximum Independent Set*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2020.

[4] Hebatullah Khattab "*Parallel Chemical Reaction Optimization for Graph Vertex Cover Problem*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2019.

[5] Omayya M. Murad "*Static Scheduling Based on Chemical Reaction Optimizer*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2019.

[6]   Ala'a M. Al-Shaikh Yousef "*Parallel Metaheuristic Algorithms for Finding Strongly Connected Components in Directed Graphs*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2019.

[7]   Raja M. Masadeh "*Metaheuristic Optimization Algorithms Based on Sea Animals Behaviors for Task Scheduling in Cloud Computing*" Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2019.

[8]   Aryaf Aladwan, "*Performance Evaluation of Optical Transpose Interconnection System Using Heuristics and Metaheuristics Algorithms*", Ph.D. Dissertation, Department of Computer Science, The University of Jordan, 2017.

M.Sc. Theses - Supervised:

[1]   Salameh Hasan Abu Shkhaidem "*Using Cuttlefish Optimization Algorithm as Features Selection Approach and Multi-Layer Perceptron Classifier for Intrusion Detection System*" M.S. Proposal, Department of Computer Science, The University of Jordan, December 2021.

[2]   Abdullah Nimer Ikhmies "*A Physarum-Energy Optimization Algorithm for Solving the Capacitated Vehicle Routing Problem*" M.S. Proposal, Department of Computer Science, The University of Jordan, April 2020.

[3]   Arar Al-Taweel "*Using Harris Hawks Optimizer for Predicting Diabetes Disease*", Department of Computer Science, The University of Jordan, 2021.

[4]   Amani Jouma Qazzaza "*Wireless Sensor Network Deployment Map Based on Weather Prediction*", Department of Computer Science, The University of Jordan, 2020.

[5]   Fatima Omar Mokahal "*A Parallel Shell Sort Algorithm for Chained-Cubic Tree Interconnection Network*", Department of Computer Science, The University of Jordan, 2017.

[6]   Rashed Abu-Tayeh, "*A Parallel Quicksort Algorithm on Optical Chained-Cubic Tree Interconnection Network*", Department of Computer Science, The University of Jordan, 2017.

[7]   Ahmad Alamoush, "*The 0-1 Knapsack Problem on Chained-Cubic Tree Interconnection Network*" Department of Computer Science, The University of Jordan, 2017.

[8]   Khaled Al Kofahi, "*Traveling Salesman Problem Over Chained-Cubic Tree Using Genetic Algorithm and Ant Colony*" Department of Computer Science, The University of Jordan, 2016.

[9]   Ala'a Nimer, "*A Parallel Merge Sort Algorithm for Chained-Cubic Tree Interconnection Network*" Department of Computer Science, The University of Jordan, 2016.

[10] Islam Al-Zoubi, "*One-to-All and All-to-All Routing Algorithms for Hyper Hexa-Cell Interconnection Network*", Department of Computer Science, The University of Jordan, December 2015.

[11] Laila B. Yousef Al-Haj, "*Routing Algorithm for OTIS Hyper Hexa-Cell Interconnection Network*" Department of Computer Science, The University of Jordan, 2014.

[12] Laila A. Bdour, "*Routing Algorithm for Optical Chained-Cubic Tree Interconnection Network*" Department of Computer Science, The University of Jordan, 2014.

[13] Issam G. Yousef, "*Routing Algorithm for CCT Interconnection Network*" Department of Computer Science, The University of Jordan, 2012.

[14] Hanadi A. Al-Dreabi, "*The OTIS-Pentagon Topology*" Department of Computer Science, The University of Jordan, 2012.

[15] Bashira A. Jaradat, "*The Load Balancing Problem in OTIS–Hypercube Interconnection Networks*", Department of Computer Science, Jordan University of Science & Technology, 2007.

[16] Malak A. Abdullah, "*The Chained–Cubic Tree: A New Interconnection Network*", Department of Computer Science, Jordan University of Science & Technology, 2007.

[17] Dania M. Abbadi, "*Multithreaded Iterative Deepening A* Heuristic Search Algorithm*", Department of Computer Science, Jordan University of Science & Technology, 2006.

[18] Mohammed Z. Zakaria, "*A Data Reduction Technique for Association Rule Mining*", Department of Computer Science, Jordan University of Science & Technology, 2006.

[19] Yanal N. Al-Ahmed, "*A Multithreading Mergesort Algorithm using PSTL*", Department of Computer Science, Jordan University of Science & Technology, 2006.

M.Sc. Theses - Co-Supervised:

[1] Hani Ibrahim Younis "*Banking Customer Churn Prediction System Using Artificial Neural Network*", Department of Computer Science, The University of Jordan, 2019.

[2] Rawan M. Allawi "*A Grey Wolf Optimizer Algorithm for Testing of Java Card Applications*", Department of Computer Science, The University of Jordan, August 2018.

[3] Ghosoun Al-Hindi, "Vulnerabilities detection in web application based on genetic algorithm", Department of Computer Science, The University of Jordan, January 2016.

[4] Ola Malkawi, "Evaluating and Tuning Destination Initiated Route Recovery Protocol", Department of Computer Science, The University of Jordan, December 2015.

[5] Wareef Al-Manaseer, "*Automatic Test Data Generation for Java Card Application*", Department of Computer Science, The University of Jordan, 2015.

[6] Monther Y. Lafi, "*Artificial Bee Colony-Based Test Data Generation for Path Coverage Testing*" Department of Computer Science, The University of Jordan, 2013.

[7] Hashem J. Hasan, "*Branch Coverage Testing Using Anti-Random*" Department of Computer Science, The University of Jordan, 2012.

[8] Hamzeh S. Eyal-Salman, "*Using Genetic Algorithm in Test Data Generation for Oracle Named Block*", Department of Computer Science, The University of Jordan, 2010.

[9] 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.

[10] Ghada M. Jaber, "*Power Aware Clustering in Mobile Ad Hoc Networks*", Department of Computer Science, The University of Jordan, 2009.

[11] 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.

[12] Osama E. Elheeh, "*Software Clustering Using Weighted Usage Graph and Genetic Algorithm*", Department of Computer Science, Jordan University of Science & Technology, 2008.

PH.D. DISSERTATIONS AND M.SC. THESES – EXAMINATIONS COMMITTEE MEMBERSHIP

Ph.D. Dissertations - Committee Examiner Member:

[1] Neveen Mohammed Hijazi, "*Ensemble Feature Selection Based on Parallel Evolutionary Algorithms: Homogeneous and Heterogeneous Approaches*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2021.

[2] Ruba Abdel Almjid Abu Khurma, "*An Enhanced Meta-Heuristic Optimization Algorithm Inspired by Moth Flame for Feature Selection Problem and Its Applications for Disease Diagnosis*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2020.

[3] Mohammed Y. Al- Khanafseh, "*A New Evidence Matching Algorithm for Cloud Forensics*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2020.

[4] Reham Shawqi Barham, "*Parallel Metaheuristic Algorithms for Solving the Link Prediction Problem*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2018.

[5] Maha Khaled Saadeh, "*An Authentication Technique of Mobile Objects for the Internet of Things*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2017.

M.Sc. Theses - Committee Examiner Member:

[1] Mahmoud Abdelrahim Abu Obaid, "*Document Image Binarization Using Deep Learning*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2022.

[2] Saja Farouq Abed Mryan, "*An Algebraic Approach to Improve Data Security in Cloud Computing Through Fragmentation*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2022.

[3] Ghadeer Mousa Mohammad Abu Qalbain, "*Facial Emotion Recognition Using Image Processing Techniques and Machine Learning Classification*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2021.

[4] Sara Mohammad Al-Switi, "*Hybrid Blockchain System for Reducing Fraud in Used-Vehicles Market*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2021.

[5] Batool Ameen Issa Malkawi, "*A Distributed Community Detection Algorithm for Big Graphs*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2020.

[6] Tariq Jalal Ali Al-Khader, "*Detecting Compromised IoT Devices Using Machine Learning*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2020.

[7] Gaith M. Abuhasheesh, "*Testing and Analyzing Financial Company Data Using Big Data Framework*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2020.

[8] Abdallah Alhameedyeen, "*Goal Oriented Testing for a Pointer Data Type*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2019.

[9] Razan Matarneh, "*Jaya Optimization Algorithm for Testing Java Card Applications*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2019.

[10] Salahaldeen Atef Rababa, "*Adaptive Filter-Based Join Algorithms for Large-Scale Data*" Department of Computer Engineering, Jordan University of Science and Technology, Irbid – Jordan, 2018.

[11] Sanad M. Alhajahjeh, "*Wireless Sensor Networks Life Time Enhancement Based on Clustering Techniques*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2017.

[12] Yemen A. Saeed, "*A Distributed Clustering Algorithm for Graphs*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2017.

[13] Dua' Abdul Kareem Alsoudi, "*Energy and Distance Based Varying Cluster-Head Role Duration for Clustered Wireless Sensor Network*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2017.

[14] Aieshah Faleh Almaslam Bany Sakher, *Evaluation of Popular Multicore Design Alternatives Using Configuration Dependent Analysis*" Department of Computer Engineering and Networks, The University of Jordan, Amman – Jordan, 2017.

[15] Mohammad Issa Abu-Dayyeh, "*Energy Based Routing Algorithm to Maximize Network Lifetime in Mobile Ad Hoc Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2016.

[16] External Thesis Reviewer, Faculty of Graduate Studies, Al-Balqa' Applied University, M.S. Thesis, Al-Salt – Jordan, October – November 2016.

[17] Mohammad Mesbah Qbea'h, "*Detecting SQL Injection Attacks: A Formal Approach*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2016.

[18] Isra Shaker Zaitoun, "*Satellite Image Clouds Classification Using Artificial Neural Network and Fuzzy Logic*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2016.

[19] Israa Ahmad Saadeh, "*Investigating Parallel Implementations of Electronic Voting Verification and Tallying Processes*" Department of Computer Engineering and Networks, The University of Jordan, Amman – Jordan, 2015.

[20] Samaa Yousef Farhan, "*A Medical Decision Support System for ENT Disease Diagnosis Using Artificial Neural Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2015.

[21] Mohammed Sultan Mohammed, "*Hardware Configuration-Independent Characterization of Multi-Core Applications*" Department of Computer Engineering and Networks, The University of Jordan, Amman – Jordan, 2015.

[22] Nada Misk, "*Automatic Detection of Unusual Crowd Behavior in Real-Time Video Surveillance Systems*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2014.

[23] Ramzi Sh. Alqrainy, "*Distributed Analytics System for Arabic Search Engines Users' Data Using Associative Classification Mining*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2014.

[24] Mohammad Z. Freaj, "*A Hybrid Approach for Resource Provisioning in Cloud Computing*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2014.

[25] Hamzeh J. Al Jawawdeh, "*Dynamic Load Balancing Protocol for Wireless Sensor Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2013.

[26] 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.

[27] Esraa A. Al-Dreabi, "*Automated Detection of Breast Cancer*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2011.

[28] Maha K. Saadeh, "*Secure Routing Protocol for Wireless Sensor*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2011.

[29] Ahmad A. Momani, "*Improved MAC Protocol for Mobile Ad Hoc Networks*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2011.

[30] 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.

[31] Ola A. Karajeh, "*Securing Wireless Sensor Networks Against Denial of Service Attacks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.

[32] 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.

[33] Atef M. Abu-Arida, "*Expert System for Hospitals' Multi Standard Accreditation*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.

[34] 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.

[35] Rasha A. Beidas, "*Skin Cancer Recognition by Using Neuro-Fuzzy System*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2010.

[36] Nidaa H. Al-Omari, "*Efficient Iris Recognition Using Reduced Iris Code Method*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[37] Manal A. Mizher, "*Bandwidth Provisioning Scheme for Clustered Wireless Sensor Network*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[38] 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.

[39] Abdulaziz Y. Al-Nahari, "*Receiver-Oriented Routing Protocol for Mobile Ad Hoc Networks*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[40] Maha S. Abdel Haq, "*A Local Intrusion Detection Routing Security Protocol*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[41] Nadeen S. Hassan, "*Using Clusters with Probe-Based Distributed Deadlock Detection Algorithms*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[42] Wala'a H. Qutechate, "*TCP Fast Retransmit Performance Investigation Over AOMDV*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2009.

[43] Hiba A. Hurani, "*Efficient Retrieval of Human Iris Code*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.

[44] Maram Y. Bani Younes, "*Branch Prediction in Pipeline Computer System*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.

[45] Saleh I. Salous, "*Efficient Processing of Database Join Based on Matrix Containment*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2008.

[46] 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.

[47] Sarah M. Alkuhlani, "*Multithreaded Instance Reduction Algorithms*" Department of Computer Science, The University of Jordan, Amman – Jordan, 2007.

[48] 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.

[49] Hadeel G. Ammari, "*Web Usage Mining for Online Recommendation Systems*" Computer Science Department, Jordan University of Science and Technology, Irbid – Jordan, 2006.

[50] 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.

[51] 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.

[52] Shatha N. Alhasan, "*Dynamic Branch Prediction Schemes and Performances*" Computer Engineering Department, Jordan University of Science and Technology, Irbid – Jordan, 2005.

[53] Raed S. Al-Qassas, "*A New Routing Protocol for Mobile Ad Hoc Networks*" Computer Science Department, Al Al-Bayt University, Mafraq – Jordan, 2003.

[54] 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 SENIOR GRADUATION PROJECTS SUPERVISED

[1] An *e*-Faculty System – Towards Full-Scale Automation.

[2] *e*-Student Services System.

[3] Course Management System.

[4] *e*-Learning System: Data Structures Course.

[5] *e*-Library System.

[6] King Abdullah University Hospital Electronic Management System.

- **Universities Robotics Competition (URC)** held at Philadelphia University (Jordan) incorporation with National Educational Center for Robotics (NECR) – **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

- Research Title: Top-Down Impact Analysis Approach to Quantify the Impact of a Change in Software Systems.
  Funded by Kuwait Foundation for Advancement of Science (KFAS)
  Amount of Grant: 16700 (KWD) around **$55,500**

- Project Title: Mediterranean Virtual University (MVU)
  Funded by EUMEDIS – European Union (EU)
  Amount of Grant: **€221,000**

- 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 the 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:

- o Launch a process of harmonization of the Euro-Mediterranean educational and training systems through the adoption of a common psycho-pedagogical model.
- o 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 co-operates together in the creation and distribution of content 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 on the campus of Jordan University of Science & Technology with the following objectives:

- o 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.
- o To improve the quality of research relevant to Parallel and Distributed Systems, Net-Centric Computing, and Multimedia, which 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 network 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 (KAFD) – 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. This e-faculty system can be applied in practice in any faculty at any university with the following e-services: Electronic Forms; Archiving; and 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 is evaluated. Our investigation focused on three categories: i) architectural optimizations, ii) compiler optimizations and iii) superscalar implementations.

- 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

Computer Science Courses	Computer Engineering Courses
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
Data Structures	Analytic Models of Interconnection Networks
Formal Languages and Automata Theory	Parallel Processing Design
Design and Analysis of Algorithms	Parallel Computation
Operating Systems	
Computer Networks	**Electrical Engineering Courses**
Computer Architectures	Communication Theory
Database Systems	Random Signals and Noise
Artificial Intelligence	Electrical Circuits
Computational Models of Cognition	Electronics
Mathematics Courses	Solid State Fundamentals
Graph Theory	Analytical Methods for Continuous-Time Systems
Combinatorial Enumeration	Analytical Methods for Multivariable and Discrete-Time Systems
Fourier Analysis	
Complex Analysis	

TAUGHT COURSES

Undergraduate Courses (B.S.)	Graduate Courses (M.S.)
Computer Skills	Parallel and Distributed Computing
Information Technology	Parallel Architecture
Programming in C	Theory of Algorithms
Programming in C++	**Graduate Courses (Ph.D.)**
Data Structures	Operating Systems & Distributed Systems
Theory of Algorithms	Computer Algorithms
Boolean Algebra and Logic Design	Parallel Processing
Computer Organization	Graph Theory & Applications
Computer Architecture	**More Courses Able to Teach (Undergraduate & Graduate)**
Operating Systems	High-Performance Computing
Computer Networks	Computational Intelligence
Parallel Processing	Computational Data Science
Distributed Systems	Big Data
Computer & Society	Data Analytics
	Artificial Intelligence
	Computational Models of Cognition
	Cloud Computing
	Data Mining
	Machine Learning

COMPUTER SKILLS

Operating Systems	Applications & Tools
MS-DOS	Message Passing Interface (MPI) Library
MS-Windows	Network II.5 Simulator
Linux and Unix (Solaris)	Comnet III (Networks Simulator)
MAC O.S.	Electronics Workbench (Circuits Simulator)
Programming Languages	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

WORKLOAD PER WEEK

Princess Sumaya University for Technology (September 2022 – Present)					
Academic Semester	Teaching Load (Credit Hours)	Number of Courses Taught	Course Coordination	Graduation Project Supervisor	Total Credit Hours Load per Semester
Fall 2022/2023	**9**	**5**	**1**		**9**

The University of Jordan (September 2015 – September 2022)					
Academic Semester	Teaching Load (Credit Hours)	Number of Courses Taught	Course Coordination Load (Credit Hours)	Ph.D. & M.Sc. Theses Supervision Load (Credit Hours)	Number of Graduate Students Supervised	Total Credit Hours Load per Semester
Summer 2021/2022	**9**	**3**	**1**	**2**	**2**	**12**
Spring 2021/2022	12	4	1	2	2	15
Fall 2021/2022	12	4	1	3.5	4	16.5
Spring 2020/2021	9	3	1	3	4	13
Fall 2020/2021	9	3	1	3.5	5	13.5
Summer 2020/2021	9	3	1	3	4	13
Fall 2019/2020	12	4	1	4	8	17
Spring 2019/2020	15	5	1	3	5	19
Summer 2019/2020	6	2	0	3	5	9
Fall 2018/2019	12	4	1	2.5	5	15.5
Spring 2018/2019	12	4	1	3.5	7	16.5
Summer 2018/2019	6	2	1	4	8	11
Fall 2017/2018	12	4	1	2.5	5	15.5
Spring 2017/2018	9	3	1	2.5	5	12.5
Summer 2017/2018	6	2	0	3	6	9
Fall 2016/2017	9	3	1	3.5	7	13.5
Spring 2016/2017	10.5	4	1	4.5	8	16
Summer 2016/2017	0	0	0	4.5	8	4.5
Fall 2015/2016	12	4	1	5.5	8	18.5
Spring 2015/2016	12	4	1	4	6	17
Summer 2015/2016	6	2	0	3.5	6	9.5

- Entrepreneurship and Innovation Training Program. Organized by the University of Jordan and Orange, Online, Sep. 18–22, 2022.
    - Change Management
    - Entrepreneurship Fundamentals
    - Advanced Entrepreneurship
    - Innovation
    - Creative Thinking and Design Thinking
- Participated in The Eighth International AqabaConf 2022 – General Arab Insurance Federation (GAIF) and Jordan Insurance Federation (JIF) – 15-19 May 2022 at InterContinental Hotel – Aqaba / Jordan.
- Online Workshop on the Law of Electronic Transactions – Ministry of Digital Economy and Entrepreneurship (Amman – Jordan) in cooperation with United Nations Economic and Social Commission for Western Asia (ESCWA), Amman – Jordan May 30 / 2021 – June 3 /2021.
- 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 is 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: 1st 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

[53] Inas Abuqaddom, Sami Serhan, and **Basel A. Mahafzah** "Cache complexity of cache-oblivious approaches: A review and extension" *International Journal of Advanced Computer Science and Applications*, Vol. 13, No. 5, pp. 1002-1009, 2022. **(Indexed by Scopus)** https://dx.doi.org/10.14569/IJACSA.2022.01305112

[52] **Basel A. Mahafzah**, Aryaf Al-Adwan, and Rawan Zaghloul "Topological properties assessment of optoelectronic architectures" *Telecommunication Systems*, Springer, Switzerland, Vol. 80, No. 4, pp. 599-627, 2022 **(Indexed by Scopus, ISI Web of Science, Journal Citation Reports – Impact Factor: 2.314)**. https://doi.org/10.1007/s11235-022-00910-5

[51] Hebatullah Khattab, **Basel A. Mahafzah**, Ahmad Sharieh "A hybrid algorithm based on modified chemical reaction optimization and best-first search algorithm for solving minimum vertex cover problem" *Neural Computing and Applications*, Springer, Switzerland, **Online First**, April 23, 2022. **(Indexed by Scopus, ISI Web of Science, Journal Citation Reports – Impact Factor: 5.606)** https://doi.org/10.1007/s00521-022-07262-w

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RESEARCH PAPERS SUBMITTED & IN PROGRESS

[1] Ala'a Al-Shaikh, **Basel A. Mahafzah**, and Mohammad Alshraideh. *A parallel memetic algorithm based on harmony search and stochastic hill-climbing algorithms for finding strongly connected components in directed graphs*. (To be submitted to Journal of Parallel and Distributed Computing, Elsevier)

[2] **Basel A. Mahafzah** and Laila B. Yousef Al-Haj. *Routing Algorithm for OTIS Hyper Hexa-Cell Interconnection Network*. (To be submitted)

[3] **Basel A. Mahafzah** and Laila A. Bdour. *Routing Algorithm for Optical Chained-Cubic Tree Interconnection Network*. (To be submitted)

[4] **Basel A. Mahafzah** and Issam G. Yousef. *Routing Algorithm for CCT Interconnection Network*. (To be submitted)

[5] Hanadi A. Al-Dreabi and **Basel A. Mahafzah**. *The OTIS-Pentagon Topology*. (To be submitted)

MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

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LANGUAGES

- **Arabic**: Native.

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COMMUNITY SERVICES AND EXTRA ACTIVITIES

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- Consultation for High-Performance Supercomputer (Iman-1) at Business Park, Amman – Jordan (June – August / 2021).
- Conducted several ICT workshops (2001 – 2006).
- Conducted training courses on networking (2001 – 2006).
- Cisco Networking Academy Program – Regional Instructor (2001 – 2006).
- International Computer Driving License (ICDL) – Instructor (2001 – 2006).
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