

Ismail M. Ababneh (short CV)

Professor

Computer Science Department, Information Technology College Al al-Bayt University Mafraq, Jordan Phone: +962 2 629 7000 ext. 3351 Mobile: +962 795 290 525 E-mail: ismael@aabu.edu.jo

Education:

PhD, Computer Engineering, Iowa State University, Ames, Iowa, USA, 1995.

MS, Software Engineering, Boston University, Boston, MA, USA, 1984.

Engineer, Ecole Nationale Superieure d'Electronique et d'Electromechanique de Caen, Caen, France, 1979.

Honors and Awards

Membership in Tau Beta Pi

Membership in Eta Kappa Nu

Undergraduate scholarship based on academic achievement in high school

Teaching excellence award, Iowa State University, 1995

Current Research Interests

Processor allocation and job scheduling in highly parallel computers, mobile ad hoc networks, interconnection networks for parallel computers, and distributed computing.

Special Professional Interests

Work and business ethics, strategic planning, and curriculum development.

Recent Professional Experience:

2010-now:	Dean of the IT College, Al al-Bayt University, Mafraq, Jordan.
2011-now:	Professor, Computer Science Department, Al al-Bayt University.
2007-2010:	Visiting Associate Professor, Computer Science Department, Jordan University of Science and Technology, Irbid, Jordan.
2004-2007:	Associate Professor, Computer Science Department, Al al-Bayt University.
1995-2004:	Assistant Professor, Computer Science Department, Al al-Bayt University.

2001-2006:	Acting Dean of the IT College, Al al-Bayt University
2001-2006:	ICDL Project Director, Al al-Bayt University
1998-2002:	Acting Director of the Computer Center, Al al-Bayt University.
1995-1998:	Coordinator of the Department of Supplies, Al al-Bayt University.
1995-2001:	Acting Head of the Computer Science Department, Al al-Bayt University.
1987-1989:	Systems Software Manager, Data Acquisition Systems, Boston, MA, USA.
1984-1987:	Software Engineer, Data Acquisition Systems, Boston, MA, USA.

Courses Taught

Undergraduate Courses: Programming in C, Programming in C++, Data Structures, Analysis and Design of Algorithms, Computer Architecture, Computer Networking, Operating Systems, Design and Implementation of Programming Languages, Internetworking and its Applications, Fundamentals of Distributed and Parallel Systems, UNIX and Midrange Computing, Graduation Project, Discrete Mathematics, Assembly Language Programming, Systems Programming, Digital Logic Design, and Computer Science-1,

Graduate Courses: Distributed Operating Systems, Parallel and Distributed Programming, Advanced Computer Networks, Programming Languages Structures, Parallel Programming, Advanced Algorithms, Software Engineering, Advanced Computer Architecture, and Research Seminar.

Journal Publications

1. Ismail Ababneh, Wail Mardini, and Asmahan Abu al-Hassan, **Adaptive velocity-based route discovery in mobile ad hoc networks**, Parallel and Distributed Computing and Networks, DOI: 10.2316/Journal.211.2013.3.211-1070.

2. Sanaa Alwidian, Ismail Ababneh, and Muneer Bani Yassein. **Neighborhood-Based Route Discovery Protocols for Mobile Ad Hoc Networks**. International Journal of Mobile Computing and Multimedia Communications (IJMCMC), Vol. 5, Issue 3, pp.68-87, 2013.

3. Abdelnasser Banihani, Mahmoud Al-Ayyoub and Ismail Ababneh, **A Direction-Based Vertical Handoff Scheme**, Journal of Emerging Technologies in Web Intelligence, Vol. 5, No. 3, pp. 278-286, August 2013.

4. Saad Bani-Mohammad, and Ismail Ababneh. On the performance of non-contiguous allocation for common communication patterns in 2D mesh-connected multicomputers. Simulation Modelling Practice and Theory 32: 155-165 (2013)

5. <u>Amal Alhosban</u>, Ismail Ababneh, and <u>Zaki Malik</u>: GFDA: Route Discovery Algorithms for On-demand Mobile Ad Hoc Routing Protocols. <u>Procedia CS 10</u>: 70-77 (2012)

6. Saad Bani-Mohammad, Ismail Ababneh, and Wail Mardini, **The Effect of Communication on the Performance of Allocation Request Shape Changes in 2D Meshconnected Multicomputers,** accepted for publication in the International Journal of Parallel, Emergent and Distributed Systems, June 16, 2012. 7. Ismail Ababneh, <u>Saad Bani-Mohammad</u>, <u>Wail Mardini</u>, <u>Hilal Alawneh</u>, and <u>Mohammad</u> <u>Hamed</u>: **The effect of communication on the performance of allocation request shape changes in 2D mesh-connected multicomputers**. <u>IJPEDS 27</u>(5): 409-433 (2012)

8. Raed Almomani, and Ismail Ababneh, **Communication Overhead in Non-Contiguous Processor Allocation Policies for 3D Mesh-Connected Multicomputers,** International Arab Journal of Information Technology, Vol. 9, No. 2, pp. 133-141, March 2012.

9. Wail Mardini, Musab Q. Al-Ghadi, and Ismail Ababneh, **Distance-Based Scheme for Vertical Handoff in Heterogeneous Wireless Networks**, Journal of Emerging Technologies in Web Intelligence, Vol. 4, No. 1, February 2012.

10. S<u>aad Bani-Mohammad</u>, Ismail Ababneh, <u>Mazen Hamdan</u>: **Performance evaluation of noncontiguous allocation algorithms for 2D mesh interconnection networks**. Journal of <u>Systems and Software 84</u>(12): 2156-2170 (2011)

11. Ismail Ababneh and Saad Bani-Mohammad, **A New Window-Based Job Scheduling Scheme for 2D Mesh Multicomputers**, Journal of Simulation Modelling Practice and Theory, Volume 19, Issue 1, pp. 482-493, January 2011.

12. Ismail Ababneh, Saad Bani-Mohammad, and Mohamed Ould-Khaoua, All Shapes Contiguous Submesh Allocation for 2D Mesh Multicomputers, International Journal of Parallel, Emergent and Distributed Systems, Vol. 25, No. 5, pp. 411-421, October, 2010.

13. Ismail Ababneh, Saad Bani-Mohammad, and Mohamed Ould-Khaoua, **An Adaptive Job Scheduling Scheme for Mesh-connected Multicomputers**, The Journal of Supercomputing, Volume 53, Number 1, pp. 5-25, July 2010.

14. Saad Bani-Mohammad, Mohamed Ould-Khaoua, Ismail Ababneh, and Lewis M. Mackenzie, **Comparative evaluation of contiguous allocation strategies on 3D mesh multicomputers**, Journal of Systems and Software, Volume 82, Issue 2, pp. 307-318, 2009.

15. Ismail Ababneh, **On Submesh Allocation for 2D Mesh Multicomputers Using the Free-List Approach: Global Placement Schemes**, Performance Evaluation Journal, Volume 66, No. 2, pp. 105-120, 2009.

16. Ismail Ababneh, **Availability-based noncontiguous processor allocation policies for 2D mesh-connected multicomputers**, Journal of Systems and Software, Volume 81, Issue 7, pp. 1081-1092, July 2008.

17. S. Bani-Mohammad, M. Ould-Khaoua and I. Ababneh, Greedy-Available Noncontiguous Processor Allocation Strategy and Job Scheduling for 2D Mesh Connected Multicomputers, International Journal of Computers and their Applications (IJCA), Vol. 15, No. 4, pp. 283-296, 2008.

18. S. Bani-Mohammad, M. Ould-Khaoua and I. Ababneh, An efficient non-contiguous processor allocation strategy for 2D mesh connected multicomputers, Information Sciences, Volume 177, Issue 14, pp. 2867-2883, 15 July 2007.

19. S. Bani-Mohammad, M. Ould-Khaoua and I. Ababneh, **A new processor allocation** strategy with a high degree of contiguity in mesh-connected multicomputers, Simulation Modelling Practice and Theory, Volume 15, Issue 4, pp. 465-480, April 2007.

20. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackhenzie, **Processor** Allocation and Job Scheduling on 3D Mesh Interconnection Networks, International Journal of Computers and Applications, (ACTA), Vol. 29, No. 3, Canada, ACTA Press, 2007.

21. Ismail Ababneh, An efficient free-list submesh allocation scheme for two-dimensional mesh-connected multicomputers, Journal of Systems and Software, Volume 79, Issue 8, pp. 1168-1179, August 2006.

22. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackenzie, A Fast and Efficient Strategy for Sub-mesh Allocation with Minimal Allocation Overhead in 3D Mesh Connected Multicomputers, Ubiquitous Computing and Communication Journal (UBICC), Volume 1, Issue1, 2006.

23. A. Y. Al-Dubai, M. Ould-Khaoua, K. El-Zayyat, I. Ababneh and S. Al-Dobai,, **Towards** scalable collective communication for multicomputer interconnection networks, Information Sciences, Volume 163, Issue 4, 18 June 2004, pp. 293-310.

24. Ismail Ababneh and Amena al-Obeid, **Multicasing in Three-Dimensional Wormhole-Routed Mesh Interconnection Networks**, Al-Manarah Journal, Al al-Bayt University, Vol. 9, No. 2, pp. 23-47, 2003; (in Arabic).

25. Ismail Ababneh and Saad Bani Mohammad, **Noncontiguous Processor Allocation for 3D Mesh Multicomputers**, AMSE Advances in Modeling and Analysis, Vol. 8, No. 2, 2003, pp. 51-63.

26. Ismail Ababneh, **Multicast Algorithms for All-Port Wormhole-Routed 3D Mesh Networks**, AMSE advances in Modelling and Analysis, D, Vol. 7, No. 3, pp. 1-18, 2002.

27. Ismail Ababneh, Job Scheduling and Contiguous Processor Allocation for Three-Dimensional Mesh Multicomputers, AMSE Advances in Modelling and Analysis, D, Vol. 6, No. 4, pp. 43-58, 2001.

28. Ismail Ababneh and Fares Fraij, Folding Contiguous and Non-Contiguous Space Sharing Policies for Parallel Computers, Mut'ah Journal for Research and Studies/Natural and Applied Sciences Series, Vol. 16, No. 3, pp. 9-34, 2001.

29. K. Zayyat, I. Ababneh, and A. al-Dubai, **A new routing approach for collective communication in interconnection networks**, AMSE Advances in Modelling & Analysis, D, Vol. 5, No. 4, 2000.

Presentations/Publications at Conferences, Symposiums and Workshops

1. Fayez Khazalah, Ismail Ababneh, Zaki Malik: Forwarding Group Maintenance of ODMRP in MANETs. ANT/SEIT 2013 Conference: 289-296, 2013.

2. Abdelnasser Banihani, Mahmoud Al-Ayyoub and Ismail Ababneh, A Direction-Based Vertical Handoff Scheme, The 4th International Conference of Information and Communication Systems (ICICS 2013), Jordan University of Science and Technology, Irbid, Jordan, April 23-25, 2013.

3. Amal Alhosban, Ismail Ababneh, and Zaki Malik, GFDA: Route Discovery Algorithms for On-demand Mobile Ad Hoc Routing Protocols, 3rd International Conference on Ambient Systems, Networks and Technologies (ANT-2012), Niagara Falls, Ontario, Canada, August 27-29, 2012.

4. Saad Bani-Mohammad, Ismail Ababneh, and Mohammad Yassen, **Non-Contiguous Processor Allocation in the Mesh-Connected Multicomputers using Compaction**, the IEEE 2012 International Conference on Computer Systems and Industrial Informatics (ICCSII-12), UAE, December 18-20, 2012. 5. Saad Bani-Mohammad and Ismail Ababneh, The Effect of Job Scheduling on the Performance of Non-contiguous Allocation in 2D Mesh-connected Multicomputers, accepted to the 11th IEEE International Conference on Scalable Computing and Communications (ScalCom 2011), Pafos, Cyprus, 31 August - 02 September, 2011.

6. Musab Al-Ghadi, Ismail Ababneh, and Wail Mardini, Performance study of SINR scheme for Vertical Handoff in wireless network, In Proceedings of ICICS2011, Jordan University of Science and Technology, Irbid, Jordan, 22-24 May, 2011.

7. Ismail Ababneh, Wail Mardini, Saad Bani-Mohammad, Hilal Alawneh, and Mohammad Hamed, *Effects of Allocation Request Shape Changes on Performance in 2D Mesh-Connected Multicomputers*, The 2010 IEEE International Conference on Computer and Information Technology (CIT 2010), Bradford, UK, 29 June – 01 July, 2010.

8. Saad Bani-Mohammad, Ismail Ababneh, and Mazen Hamdan, *Comparative Performance Evaluation of Non-Contiguous Allocation Algorithms in 2D Mesh-Connected Multicomputers*, The 2nd International Workshop on Advanced Topics on Scalable Computing (ATSC 2010), Bradford, UK, 29 June – 01 July, 2010.

9. Saad Bani-Mohammad, I. Ababneh, and M. Ould-Khoaua, *A Comparative Study of Real Workload Traces and Synthetic Workload Models for Non-Contiguous Allocation in 2D Meshes*, Proc. of the IEEE International Conference on Scalable Computing and Communications (ScalCom09), Dalian, China, Sept. 25-27, 2009.

10. Raed Seetan, Ismail Ababneh and Ahmad Dalal'ah, *Congestion-Aware Routing Protocols* for Ad Hoc Networks, The 4th International Conference on Information Technology (ICIT 2009), al-Zaytoona University, Amman, Jordan, June $3^{rd} - 5^{th}$, 2009.

11. S. Bani-Mohammad, I. Ababneh, and M. Ould-Khoaua, *A Performance Comparison of the Non-Contiguous Allocation Strategies in 2D MeshConnected Multicomputers*, International Conference on Communication, Computer and Power, Sultan Qaboos University, Muscat, Sultanate of Oman, February 15-18, 2009.

12. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh, Lewis M. Mackenzie and J. D. Ferguson, *The Effect of Real Workloads and Stochastic Workloads on the Performance of Allocation and Scheduling Algorithms in 2D Mesh Multicomputers*, The 22nd IEEE Int. Parallel and Distributed Processing Symposium (IPDPS 2008), April 14-18, 2008, Florida, USA.

13. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackhenzie, *Comparative Evaluation of the Non-Contiguous Processor Allocation Strategies based on a Real Workload and a Stochastic Workload on Multicomputers*, Third International Workshop on Scheduling and Resource Management for Parallel and Distributed Systems (SRMPDS '07) held in conjunction with the 13th International Conference on Parallel and Distributed Systems (ICPADS'07) – Volume 2, pp. 1-7, IEEE, Hsinchu, Taiwan, December 5-7, 2007.

14. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackhenzie, *A Performance Comparison of the Contiguous Allocation Strategies in 3D Mesh Connected Multicomputers*, Fifth International Symposium on Parallel and Distributed Processing and Applications (ISPA 2007), Wednesday, August 29 -- Friday, August 31, Niagara Falls, ON, CANADA, LNCS 4742, pp. 645-656, 2007, Springer-Verlag Berlin Heidelberg 2007.

15. Ismail Ababneh, A Performance Comparison of Contiguous Allocation Placement Schemes for 2D Mesh-connected Multicomputers, 2007 ACS/IEEE International Conference on Computer Systems and Applications, (AICCSA 2007), May 13-16, 2007, Amman, Jordan.

16. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackenzie, An Efficient Processor Allocation Strategy that Maintains a High Degree of Contiguity among Processors

in 2D Mesh Connected Multicomputers, 2007 ACS/IEEE International Conference on Computer Systems and Applications, (AICCSA 2007), May 13-16, 2007, Amman, Jordan.

17. S. B. Hacene and I. Ababneh, *Predictive Preemptive Ad hoc On-demand Distance Vector Routing*, Mobile Computing and Wireless Communications International Conference, Amman, Jordan, September 17-20, 2006.

18. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackhenzie, *Greedy-Available Non-contiguous Processor Allocation Strategy and Job Scheduling for 2D Mesh Connected Multicomputers*, Proc. 11th International CSI Computer Conference, CSICC 2006, January 24-26, 2006, pp. 122-130, School of Computer Science, IPM, Tehran, Iran. This paper has been selected for the special issue in International Journal of Computers and their Applications, ISCA Press.

19. S. Bani-Mohammad, M. Ould-Khaoua, I. Ababneh and Lewis M. Mackhenzie, *An Efficient Turning Busy List Sub-mesh Allocation Strategy for 3D Mesh Connected Multicomputers*, Proceedings of the 7th Annual PostGraduate Symposium on the Convergence of Telecommunications, Networking & Broadcasting, (PGNET 2006), Liverpool John Moores University, UK, 26-27 June 2006.

20. <u>Saad Bani-Mohammad</u>, <u>Mohamed Ould-Khaoua</u>, Ismail Ababneh, <u>Lewis M. Mackenzie</u>: Non-contiguous Processor Allocation Strategy for 2D Mesh Connected Multicomputers based on Sub-meshes Available for Allocation. ICPADS (2) 2006: 41-48

21. Bani-Mohammad S., Ould-Khaoua M., and Ababneh I., *Performance Evaluation of Processor Allocation Strategies in the 2-Dimensional Mesh Network*, N. Thomas (editor), Proceedings of 21st UK Performance Engineering Workshop (UKPEW 2005), School of Computing Science, Technical Report Series, CS-TR-916, University of Newcastle, UK, 14-15 July 2005. ISSN 1368-1060. pp. 177-188.

22. Bani-Mohammad S., Ould-Khaoua M., and Ababneh I., *A Simulation Study of Allocation Strategies on the Mesh Interconnection Networks*, Proceedings of the 6th Annual PostGraduate Symposium on the Convergence of Telecommunications, Networking & Broadcasting, (PGNET 2005), Liverpool John Moores University, UK, 27-28 June 2005, ISBN 1-902-56011-6, pp. 197-202.

23. M. Bani Yassein, A. Dalal'ah, I. Ababneh, and M. Ould Khaoua, *Equivalent bandwidth allocation for QoS in ATM networks*, Proc. 19th UK Performance Engineering Workshop (UKPEW' 2003), University of Warwick, July 9-10, 2003, pp. 319-329.

24. Al-Dubai, A., Ould-Khaoua, M., El-Zayyat, K. and Ababneh, I, *Towards Scalable Collective Communication for Multicomputer Interconnection Networks*, ACIT'2002, University of Qatar, Doha, Qatar, December 2002.

25. Mulhim al-Doori, Ra'ed el-Sayed, and Ismail Ababneh, *Homepage Development: Issues and Techniques*, IT 99, University of Jordan, Amman-Jordan, March 1999.

26. Ismail Ababneh and Faisal al-Saqqar, *A Performance Study of the PowerXplorer Parallel Computer*, 4th Philadelphia International Conference, Philadelphia University, Jordan, July 1999.

27. Ismail Ababneh and Mulhim al-Doori, *Distance Learning for Jordan: Enabling Technologies*, IT 99, University of Jordan, Amman-Jordan, March 1999.

28. Ismail Ababneh, *Parallel Programming Paradigms*, High Performance Computing Workshop, Al al-Bayt University, November 1998.

29. Ismail Ababneh and Fares Fraij, *Contiguous and Non-contiguous Space Sharing Policies for Parallel Computers*, Fourth International Jordanian Mathematics Conference, Yarmouk University, Irbid, Jordan, August 1998.

30. Ismail Ababneh, *Static Space Sharing Scheduling Policies for Parallel Computers*, High Performance Computing Workshop, Al al-Bayt University, September 1996.

31. Ismail M. Ismail (Ababneh) and James A. Davis, *Adaptive Run-To-Completion Job Scheduling Policies for Parallel Computers*, Proceedings of ICECS'95, December 1995, pp. 62-68.

32. Ismail M. Ismail (Ababneh) and James A. Davis, *Program-Based Static Allocation Policies for Highly Parallel Computers*, Proceedings of the 1995 IEEE Annual International Phoenix Conference on Computers and Communications, March 1995, pp. 61-68.

MS Thesis Supervised

I have supervised approximately sixty MS thesis, mainly in the areas of processor allocation for distributed memory parallel computers, interconnection networks and ad hoc networks.

Refereeing Activities

- 1. Reviewer for Journal of Parallel and Distributed Computing
- 2. Reviewer for the International Journal of Parallel, Emergent and Distributed Systems
- 3. Reviewer for ASME advances in Modelling & Analysis
- 4. Reviewer for Al-Manarah Journal, Al al-Bayt University
- 5. Reviewer for the Computer Journal.

6. Member of the Editorial Board of Al-Manarah Journal for Research and Studies (2006-2007)

7. Referee for the Scientific Research Support Fund (SRSF) of the Ministry of Higher Education and Scientific Research (2007-present)

8. Member of Program Committee for the 2010 ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2010).

9. Session chair in several national and international conferences (e.g., ACIT'2006, AICCSA 2007, ICIT 2009)

Contributions to Universities and the Community

1. Played the key role in establishing the IT Faculty at Al al-Bayt University (ABU) in 2001.

2. Was a member of the committee that prepared ABU's 2005-2009 strategic plan.

3. Member of the council of trustees for Petra University from December, 2005 to November, 2009.

4. Member of the Scientific Research Support Fund committee for the Communications and IT sector (13/5/2012- present). عضو في لجنة قطاع الاتصالات وتكنولوجيا المعلومات لصندوق دعم البحث العلمي

5. Member of the recruitment and promotion committee (2012-), the scientific research committee (2011-), student issues committee (2012-), the curriculum committee (2010-) at ABU.

6. Member of ABU's QA steering committee.

7. Founded an ICDL center and a Cisco local academy at ABU.

8. Member/head of several accreditation committees for Jordanian public and private universities

9. Member of several national IT curriculum review committees

10. Member of ABU's university council (1998-2006 and 2010-present)

11. Member of ABU's council of deans (1998-2006 and 2010-prsent)

12. Member of ABU's central tendering committee (1995-1998)

13. Have headed numerous technical committees for bids evaluation

14. Have headed the computer center council from 2002 to 2007

15. Member of the IT technical committee for the Jordanian public universities (1998-2002)

16. Head of the steering committee for the Future Search Conference: The Future of ICT in Higher Education: Finding Common Ground for Intervention, Amman, 1-3 Dec., 2005

17. Have headed the new CS curriculum development team at Jordan University of Science and Technology from 2007 to 2009.

18. Member of the distance-learning ad hoc investigation committee at Al al-Bayt University, formed on 22 Nov. 2010. دراسة موضوع التعلم عن بعد

19. Member of the committee formed for preparing the guidelines for the M-ICTE graduation project, 2010/2011. دراسة آلية تنفيذ مساق مشروع التخرج

20. Member of university-wide curriculum committee (2012-).

21. Member of the evaluation committee for the telecommunications and IT sector; Research Support Fund; Ministry of Higher Education and Scientific Research (2012-).

Major Funded Projects

Have acted as Al al-Bayt University Coordinator for the following major projects:

1. **Peace-by-HPC (INCO-DC Project 950895):** This was an EC-funded high performance computing project with partners from Parsytec (Germany), NTUA (Greece), Al al-Bayt University (Jordan), ECTRA(Egypt), and ERI (Egypt). Al al-Bayt's funded share: 77,500 ECUs.

2. Jordanian Higher Education Development Project: This is a multi-million project that has for goal the improvement of higher education in Jordan, with emphasis on computing. The project is funded by the World Bank. The participants are the Jordanian public universities, including Al al-Bayt University.

3. **Economic and Social Reform Project:** I coordinated the computing subprojects for Al al-Bayt University. They included the acquisition of state-of-the-art computing equipment, software, and training. The total value of these components was approximately 1.8 Million US dollars. 4. **National Agenda Project:** This includes several Al al-Bayt University sub-projects funded through the Ministry of Higher Education and Scientific Research. The total value of these sub-projects for 2006 was 340,000 JDs.

دورات مهنية 1. حلقة دراسية وطنية لكبار المسئولين عن التخطيط والإدارة في التعليم العالي، عمان، الأردن، 16–19 أيلول 2002. 2. التعليم الالكتروني، اليونسكو، جامعة اليرموك، 11–21/2/15 3. تطبيقات متعددات الوسائط، MED.CAMPUS ،جامعة الإسكندرية، مصر، 2–7/9/59 4. ألتجارة الالكترونية، Sun Microsystems، لندن، 10–23 أيلول 2000 5. الحوسبة عالية الكفاءة، مشروع ممول من الاتحاد الأوروبي، جامعة ATUA، أثينا اليونان 6. أخلاقيات الأعمال، الجمعية الأردنية لأخلاقيات المهنة، عمان، الأردن، 2008

Personal Data:

Date of Birth: June 10, 1954

Marital Status: married with three children

Languages: Arabic (native), English (fluent), and French (fluent)

Short resume last updated: April 28, 2013