MOHAMMAD I. DAOUD

Department of Computer Engineering

German Jordanian University

P.O. Box 35247

Amman 11180 Jordan

+962 795934911

mohammad.aldaoud@gju.edu.jo

PERSONAL INFORMATION

Nationality: Jordanian and Canadian

CURRENT OCCUPATION

Assistant Professor   2011 – Present
Department Head   2012 – Present
Department of Computer Engineering
School of Computer Engineering and Information Technology
German Jordanian University, Amman, Jordan
Research focus: Medical image analysis, image & signal processing, non-invasive cancer detection, parallel & distributed computing, and data mining

EDUCATION AND TRAINING

Postdoctoral Research Fellow   2010 – 2011
Department of Electrical and Computer Engineering
The University of British Columbia, Vancouver, BC, Canada
Advisors: Prof. Septimiu Salcudean, Dr. Purang Abolmaesumi, and Dr. Robert Rohling
Research focus: Ultrasound image analysis, computer vision, signal processing, and data mining

Doctor of Philosophy   2005 – 2009
Department of Electrical and Computer Engineering
The University of Western Ontario, London, ON, Canada
Advisor: Dr. James Lacefield
Research focus: Ultrasound image analysis, 3D computational modeling of tissue microanatomy, 3D ultrasound simulation software that runs on parallel systems
GPA: 93.4%

Master of Applied Science   2003 – 2005
Department of Electrical and Computer Engineering
Concordia University, Montreal, QC, Canada
Advisor: Dr. Nawwaf Kharma
Research focus: Task scheduling algorithms for distributed computing systems, evolutionary computation, and machine learning
GPA: 3.8

Bachelor of Applied Science   1996 – 2001
Department of Electrical Engineering – Computer Engineering Option
An-Najah National University, Nablus, Palestine
Advisor: Dr. Raed Al-Qadi
Graduation Project: A computer controlled robot arm
GPA: 91.7%

LANGUAGES

Arabic (fluent – mother tongue), English (fluent), French (basic)

FELLOWSHIPS AND AWARDS

Postdoctoral Fellowship (PDF), Natural Sciences and Engineering Research Council of Canada (NSERC), 2010–2011 (Level: National– prestigious fellowship offered by Canada's federal government to the most promising postdoctoral research fellows, Value: CND$40,000/yr).

Postgraduate Scholarship – Doctorate, Natural Sciences and Engineering Research Council of Canada (NSERC), 2007–2009 (Level: National – prestigious scholarship offered by Canada's federal government to the most promising doctoral students, Value: CND$21,000/yr).

Western Engineering Scholarship, The University of Western Ontario, London, ON, Canada, 2005–2009, (Level: Institutional, Value: CND$8,500 for 2005–2006, CND$4,500 for 2006–2007, CND$9,685 for 2007–2008, CND$9,906 for 2008–2009).

Strategic Training Program in Cancer Research and Technology Transfer, Canadian Institutes of Health Research (CIHR) and University of Western Ontario, 2006–2008 (Level: Institutional, Value: CND$23,600/yr).

Ontario Graduate Scholarship (OGS) – declined, Ontario Ministry of Training, Colleges and Universities, 2007–2008 (Level: Provincial, Value: CND$15,000/yr).

Outstanding Presentation in Graduate Symposium 2007, Department of Electrical and Computer Engineering, The University of Western Ontario, London, ON, Canada, 2007.

First Prize, Graduation Project Competition, Department of Electrical Engineering, An-Najah National University, Nablus, Palestine, 2001.

Dean's Honour List, Faculty of Engineering, An-Najah National University, Nablus, Palestine, 1997–2001.

Tuition Scholarship, An-Najah National University, Nablus, Palestine, 1997–2001, (Level: Institutional, Value: US$500/yr).

PAST RESEARCH AND PROFESSIONAL EXPERIENCE

Postdoctoral Research Fellow   Mar. 2010 – Sep. 2011
Department of Electrical and Computer Engineering
The University of British Columbia, Vancouver, BC, Canada

Postdoctoral Fellow   Sep. 2009 – Dec. 2009
Department of Electrical and Computer Engineering
The University of Western Ontario, London, ON, Canada

Graduate Student – Doctorate   Sep. 2005 – Aug. 2009
Department of Electrical and Computer Engineering
The University of Western Ontario, London, ON, Canada

Programmer Analyst   Aug. 2004 – May 2005
Research and Development Department
SoftSim Technologies Inc., Longueuil, QC, Canada

Research Assistant   Jan. 2003 – Jan. 2005
Department of Electrical and Computer Engineering
Concordia University, Montreal, QC, Canada

Network Engineer   Mar. 2002 – Jan. 2003
Information Technology Unit
Palestine Telecommunications Co., Nablus, Palestine

PAST TEACHING EXPERIENCE

Lecturer   Jan. 2011 – Apr. 2011
Visiting Lecturer   Sep. 2010 – Dec. 2010
Department of Electrical and Computer Engineering
The University of British Columbia, Vancouver, BC, Canada

Teaching Assistant – Part Time   Sep. 2005 – Apr. 2009
Department of Electrical and Computer Engineering
The University of Western Ontario, London, ON, Canada

Lecturer – Part Time   Jun. 2005 – Aug. 2005
Faculty of Engineering and Information Technology
Arab American University, Jenin, Palestine

Teaching Assistant – Part Time   Jan. 2003 – Apr. 2004
Department of Electrical and Computer Engineering
Concordia University, Montreal, QC, Canada

Teaching & Research Assistant – Part Time   Aug. 2001 – Mar. 2002
Department of Electrical Engineering
An-Najah National University, Nablus, Palestine

Cisco Certified Network Associate (CCNA) Instructor   Sep. 2001 – Mar. 2002
Cisco Networking Academy
An-Najah National University, Nablus, Palestine

STUDENT SUPERVISION ROLES

Farhad Imani (Ph.D. student co-supervised with Drs. Purang Abolmaesumi and Parvin Mousavi), Department of Electrical and Computer Engineering, Queen's University, Kingston, ON, Canada, May 2010 – Present.

Jonathan C. Chung (summer undergraduate student co-supervised with Dr. Purang Abolmaesumi), Department of Electrical and Computer Engineering, University of British Columbia, Vancouver, BC, Canada, May 2011 – August 2011.

Tarundeep Singh Dhot (M.A.Sc. student co-supervised with Dr. Nawwaf Kharma), Department of Electrical and Computer Engineering, Concordia University, Montreal, QC, Canada, Jul. 2008 – Feb. 2009.

Bilal Badr (work-study undergraduate student co-supervised with Dr. James Lacefield), Department of Electrical and Computer Engineering, University of Western Ontario, London, ON, Canada, Nov. 2006 – Feb. 2007.

Thipphathong Vattaso (work-study undergraduate student co-supervised with Dr. James Lacefield), Department of Electrical and Computer Engineering, University of Western Ontario, London, ON, Canada, May 2007 – Aug. 2007.

JOURNAL AND CONFERENCE REVIEWING

Referee, Journal of Parallel and Distributed Computing (Impact Factor: 1.078), 2006 – Present.

Referee, IEEE Transactions on Computers (Impact Factor: 1.608), 2008 – Present.

Referee, IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control (Impact Factor: 1.462), 2011 – Present.

Member of the technical program committee, The 9th International Conference on Innovations in Information Technology, Al-Ain, United Arab Emirates, 2013.

Member of the technical program committee, The 8th International Conference on Innovations in Information Technology, Al-Ain, United Arab Emirates, 2012.

Referee, The 14th International Conference on Medical Image Computing and Computer Assisted Intervention, Toronto, ON, Canada, 2011.

Referee, The 7th International Conference on Innovations in Information Technology, Abu Dhabi, United Arab Emirates, 2011.

PUBLICATIONS

Refereed Journal Papers

Published and Accepted:

[1] **M. I. Daoud**, P. Mousavi, F. Imani, R. Rohling, and P. Abolmaesumi, "Tissue classification using ultrasound-induced variations in acoustic backscattering features," *IEEE Trans. Biomed. Eng.*, vol. 60(2), pp. 310–320, 2013 (Impact Factor: 2.278).

[2] **M. I. Daoud** and N. Kharma, "A hybrid heuristic-genetic algorithm for task scheduling in heterogeneous processor networks," *J. Parallel Distrib. Comput.*, vol. 71(11), pp. 1518–1531, 2011 (Impact Factor: 0.859, 5-Year Impact Factor: 1.116).

[3] Y.-T. Shen, **M. I. Daoud**, and J. C. Lacefield, "Computational models of distributed aberration in ultrasound breast imaging," *IEEE Trans. Ultrason. Ferroelectr. Freq. Control*, vol. 57(12), pp. 2627–2636, 2010 (Impact Factor: 1.694).

[4] **M. I. Daoud** and J. C. Lacefield, "Stochastic modeling of normal and tumor tissue microstructure for high-frequency ultrasound imaging simulations," *IEEE Trans. Biomed. Eng.*, vol. 56(12), pp. 2806–2815, 2009 (Impact Factor: 2.278).

[5] **M. I. Daoud** and J. C. Lacefield, "Distributed three-dimensional simulation of B-mode ultrasound imaging using a first-order k-space method," *Phys. Med. Biol.*, vol. 54(17), pp. 5173–5192, 2009 (Impact Factor: 2.829).

[6] J. C. Tillett, **M. I. Daoud**, J. C. Lacefield, and R. C. Waag, "A k-space method for acoustic propagation using coupled first-order equations in three dimensions," *J. Acoust. Soc. Am.*, vol. 126(3), pp. 1231–1244, 2009 (Impact Factor: 1.550).

[7] **M. I. Daoud** and N. Kharma, "A high performance algorithm for static task scheduling in heterogeneous distributed computing systems," *J. Parallel Distrib. Comput.*, vol. 68(4), pp. 399–409, 2008 (Impact Factor: 0.859, 5-Year Impact Factor: 1.116).

In Preparation:

[8] **M. I. Daoud**, M. M. Baba, F. Awwad, and M. Al-Najjar, "Accurate segmentation and classification of breast tumors in ultrasound images," expect submission to *Medical Image Analysis*, 25 double-spaced pages.

[9] **M. I. Daoud**, P. Abolmaesumi, S. E. Salcudean, and R. N. Rohling, "Signature-based algorithm for improved needle visualization in ultrasound images," expect submission to *IEEE Trans. Ultrason. Ferroelectr. Freq. Control*, 20 double-spaced pages.

Refereed Conference Papers

Published and Accepted:

[1] **M. I. Daoud**, M. M. Baba, F. Awwad, M. Al-Najjar, and E. S. Tarawneh, "Accurate segmentation of breast tumors in ultrasound images using a custom-made active contour model and signal-to-noise ratio variations," The 8th International Conference on Signal Image Technology and Internet Based Systems, *Proc. 8th International Conference on Signal Image Technology and Internet Based Systems*, pp. 137–141, Naples, Italy, Nov. 25–29, 2012 (Podium Presentation).

[2] J. C. Chung, **M. I. Daoud**, F. Imani, P. Mousavi, and P. Abolmaesumi, "GPU accelerated implementation of ultrasound radio-frequency time series analysis," SPIE Medical Imaging 2012, *Proc. SPIE*, vol. 8320, 83201I, San Diego, CA, USA, Feb. 4–9, 2012 (Poster Presentation).

[3] **M. I. Daoud**, P. Abolmaesumi, W. You, S. E. Salcudean, R. N. Rohling, "Signature-based algorithm for improved needle localization in ultrasound images: a feasibility study," IEEE International Ultrasonics Symposium, *Proc. 2011 IEEE Intl. Ultrason. Symp.*, pp. 1575–1578, Orlando, FL, USA, Oct. 18–21, 2011 (Poster Presentation).

[4] F. Imani, **M. I. Daoud**, M. Moradi, P. Abolmaesumi, P. Mousavi, "Tissue classification using depth-dependent ultrasound time series analysis: *in-vitro* animal study," SPIE Medical Imaging 2011, *Proc. SPIE*, vol. 7968, 79680F, Lake Buena Vista, FL, USA, Feb. 12–17, 2011 (Podium Presentation).

[5] F. Imani, M. Z. Wu, A. Lasso, E. C. Burdette, **M. I. Daoud**, G. Fichtinger, P. Abolmaesumi, P. Mousavi, "Monitoring of tissue ablation using time series of ultrasound RF data," 14th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI 2011), *Lecture Notes in Computer Science*, vol. 6891, pp. 379–386, Toronto, ON, Canada, Sep. 18–22, 2011 (Poster Presentation).

[6] **M. I. Daoud**, P. Mousavi, F. Imani, R. Rohling, and P. Abolmaesumi, "Computer-aided tissue characterization using ultrasound-induced thermal effects: analytical formulation and *in-vitro* animal study," SPIE Medical Imaging 2011, *Proc. SPIE*, vol. 7968, 79680G, Lake Buena Vista, FL, USA, Feb. 12–17, 2011 (Podium Presentation).

[7] **M. I. Daoud** and J. C. Lacefield, "Three-dimensional computer simulation of high-frequency ultrasound imaging of healthy and cancerous murine liver tissues," SPIE Medical Imaging 2011, *Proc. SPIE*, vol. 7968, 79680H, Lake Buena Vista, FL, USA, Feb. 12–17, 2011 (Podium Presentation).

[8] **M. I. Daoud** and J. C. Lacefield, "Stochastic modeling of tissue microstructure for high-frequency ultrasound imaging simulations," SPIE Medical Imaging 2009, *Proc. SPIE*, vol. 7262, 72620P, Lake Buena Vista, FL, USA, Feb. 7–12, 2009 (Podium Presentation).

[9] T. Singh, N. Kharma, **M. Daoud**, and R. Ward, "Genetic programming based image segmentation with applications to biomedical object detection," 2009 Genetic and Evolutionary Computation Conference (GECCO 2009), *Proc. 2009 Gene. Evol. Comp. Conf.*, pp. 1123–1130, Montreal, QC, Canada, Jul. 8–12, 2009 (Podium Presentation).

[10] **M. I. Daoud** and J. C. Lacefield, "Efficient three-dimensional simulation of ultrasound imaging using a parallel k-space method," 31st Canadian Medical and Biological Engineering Conference (CMBEC31), Montreal, QC, Canada, Jun. 11–13, 2008 (Four Page Paper, Podium Presentation).

[11] **M. I. Daoud** and J. C. Lacefield, "Parallel three-dimensional simulation of ultrasound imaging," 22nd International Symposium on High Performance Computing Systems and Applications (HPCS 2008), *Proc. 22nd Intl. Symp. High Perform. Comp. Sys. Appl.*, pp. 146–152, Quebec City, QC, Canada, Jun. 9–11, 2008 (Podium Presentation).

[12] **M. I. Daoud**, Y.-T. Shen, and J. C. Lacefield, "A scalable parallel implementation of a k-space method for large-scale ultrasound imaging simulations," IEEE International Ultrasonics Symposium, *Proc. 2006 IEEE Intl. Ultrason. Symp.*, pp. 2194–2197, Vancouver, BC, Canada, Oct. 3-6, 2006 (Poster Presentation).

[13] **M. I. Daoud** and N. Kharma, "An efficient genetic algorithm for task scheduling in heterogeneous distributed computing systems," 2006 IEEE Congress on Evolutionary Computation (CEC 2006), *Proc. 2006 IEEE Cong. Evol. Comp.*, pp. 3258–3265, Vancouver, BC, Canada, Jul. 16–21, 2006 (Podium Presentation).

[14] **M. I. Daoud** and N. Kharma, "Efficient compile-time task scheduling for heterogeneous distributed computing systems," 12th International Conference on Parallel and Distributed Systems (ICPADS), *Proc. 12th Intl. Conf. Para. Dist. Sys.*, vol. 1, pp. 11–22, Minneapolis, MN, USA, Jul. 12–15, 2006 (Podium Presentation).

[15] **M. Daoud** and N. Kharma, "GATS 1.0: a novel GA-based scheduling algorithm for task scheduling on heterogeneous processor nets," 2005 Genetic and Evolutionary Computation Conference (GECCO 2005), *Proc. 2005 Gene. Evol. Comp. Conf.*, vol. 2, pp. 2209–2210, Washington, DC, USA, Jun. 25–29, 2005 (Poster Presentation).

[16] **M. Daoud**, N. Kharma, A. Haidar, and J. Popoola, "Ayo, the Awari player, or how better representation trumps deeper search," 2004 IEEE Congress on Evolutionary Computation (CEC 2004), *Proc. 2004 IEEE Cong. Evol. Comp.*, vol. 1, pp. 1001–1006, Portland, OR, USA, Jun. 19–23, 2004 (Podium Presentation).

Refereed Conference Abstracts

[1] **M. I. Daoud** and J. C. Lacefield, "Three-dimensional computational modeling of high-frequency ultrasound imaging of murine liver and liver metastases," 160th Meeting of the Acoustical Society of America, Cancun, Mexico, Nov. 15–19, 2010 (Podium Presentation).

[2] J. C. Lacefield, **M. I. Daoud**, S. Z. Pinter, L. A. Wirtzfeld, and A. Fenster, "Tools for planning and performing longitudinal cancer studies in mice using high-frequency ultrasound," 34th International Symposium on Ultrasonic Imaging and Tissue Characterization, *Ultrason. Imaging*, vol. 31, p. 74, Arlington, VA, USA, Jun. 10–12, 2009 (**Invited** Podium Presentation).

[3] **M. I. Daoud** and J. C. Lacefield, "Stochastic modeling of murine liver microanatomy for high-frequency ultrasound imaging simulations," 6th International Conference on Ultrasonic Biomedical Microscanning, Malibu, CA, USA, Sep. 23–26, 2008 (Podium Presentation).

Invited Lectures

[1] **M. I. Daoud**, "Three-dimensional computational modeling of preclinical ultrasound cancer imaging," Bioacoustics Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL, Sep. 8, 2009.

[2] **M. I. Daoud**, "Parallel three-dimensional simulation and analysis of high-resolution ultrasound images," Electrical and Computer Engineering, University of British Columbia, Vancouver, BC, Nov. 18, 2009.

Selected Seminar, Symposium, and Workshop Presentations

[1] **M. I. Daoud** and J. C. Lacefield, "Three-dimensional modeling of ultrasound imaging," Robarts Research Day, Robarts Research Institute, London, ON, Canada, Mar. 27, 2008 (Poster Presentation).

[2] **M. I. Daoud** and J. C. Lacefield, "Three-dimensional computer simulations to analyze high-frequency ultrasound B-mode images of preclinical tumour models," London Imaging Discovery Forum, London Convention Centre, London, ON, Canada, Jun. 5, 2008 (Poster Presentation).

[3] **M. I. Daoud**, Y.-T. Shen, and J. C. Lacefield, "Parallel implementation of a k-space method for large-scale ultrasound imaging simulations," Second Annual Canadian Student Conference on Biomedical Computing, London, ON, Canada, Mar. 16–18, 2007 (Poster Presentation).

[4] **M. I. Daoud** and J. C. Lacefield, "Three-dimensional computational modeling of preclinical ultrasound cancer imaging," Dept. of Oncology Research & Education Day, The Schulich School of Medicine & Dentistry, The University of Western Ontario, London, ON, Canada, Jun. 22, 2007 (Poster Presentation).

[5] **M. I. Daoud**, "Parallel k-space method for two-dimensional ultrasound imaging simulations," 2007 Graduate Symposium, Department of Electrical and Computer Engineering, The University of Western Ontario, London, ON, Canada, Jul. 30–31, 2007 (Podium Presentation).