

Curriculum Vitae

Abdullatif Abdulaziz Alwasel, BSc, MASc, PhD

Olaya, Riyadh, Saudia Arabia.

Tel: 0554476678

awasel@ksu.edu.sa

Summary of Qualifications

- One-year experience in Assistive technology devices clinic.
- One-year experience in designing foot orthotics for diabetic patients
- In depth knowledge in designing special seating systems.
- In depth knowledge in designing biomechanics experiments.
- Strong computer skills in Microsoft Office, Graphical Software (Grapher), and programming in C language.
- Strong computer programming skills in MATLAB and Mathematica.
- Strong analytical skills with solution orientation.
- Strong oral and written skills developed through interactions with professors, colleague, and students.

Research Interest

- Rehabilitation Engineering
- Injuries among construction workers.
- Tracking human motion outside lab settings.
- Design of special devices for special needs patients.

Education

**PhD, Specializing in Biomechanics and Motion Tracking
Systems Design Engineering, University of Waterloo,
Waterloo, Canada Jan 2012- March 2017**

Supervisors: Professor Eihab M. Abdel-Rahman, Professor Carl T. Haas.

Relevant Courses

- SYDE 750 Applied Non-Linear Dynamics.
- KIN 730 Fundamentals of Work and Health.
- SYDE 682 Advanced MicroelectricoMechanical Systems.
- SYDE 750 Non-Linear Systems.

**Master of Applied Sciences, Specializing in Biomedical Engineering
System Design Engineering, University of Waterloo,
Waterloo, Canada Sep 2009-Nov 2011**

Dissertation: “Shoulder Injury Among Construction Workers” Supervisors: Professor Eihab M. Abdel-Rahman, Professor Carl T. Haas.

Relevant Courses

- SYDE 750 Modeling of Biomechanical Systems
- CIVE 700 Sensing in Civil Engineering
- KIN 612 Instrumentation and Signal Processing in Biophysical Research
- KIN 682 Biomechanical Modeling

**Bachelor of Science, Biomedical Technology, King Saud University
Riyadh, Saudi Arabia Jul 2002-Feb 2007**

Professional Work Experience

**Research Assistant, Systems Design Engineering
University of Waterloo, Waterloo, Canada Sep 2009-March 2017**

- Designed mechanical exoskeleton for tracking body segment motion in space.
- Performed extensive literature review using online and print resources to better understand the field of Ergonomics in construction work.
- Performed post processing of angle data using MATLAB.
- Designed electronic breadboard for communication purposes with the sensor.
- Wrote scientific report and papers on research topic to be presented at conferences and to be published in journals.
- Programmed Microcontroller using C language.

**Research Assistant, Biomedical Technology Department
King Saud University, Riyadh, Saudi Arabia Oct 2008-June 2009**

- Taught digital gates electronics lab for undergraduate course.
- Help grading courses in electronics.

**Rehabilitation Technologist, Rehabilitation Hospital
King Fahd Medical City, Riyadh, Saudi Arabia Feb 2008-Mar 2009**

- Examine diabetic feet patients to prescribe special insoles to redistribute pressure under feet to prevent sores.
- Design special insoles for diabetic patients.
- Examine pressure distribution of leg prosthesis using NOVEL system.
- Examine patients with seating disability to prescribe special seating aids to achieve more independence in daily life activities.
- Design special seating system for patient with disability to help with spine position.

Professional training

- Certificate in University Teaching, Center of Teaching Excellence, University of Waterloo, Feb 2012- April 2017.
- Fundamentals of University Teaching, Center of Teaching Excellence, University of Waterloo, Feb 2011-June 2011.
- Completed Organizational and Human Development's Student Leadership Program University of Waterloo, Canada, Nov 2010.
- Practice your presentation skills (MITACS), Waterloo, Canada, June 2010.
- Intensive training on NOVEL foot pressure systems and insoles design, Riyadh, Saudi Arabia, April 2008.
- Biomedical Engineer, Internship, King Abdulaziz Medical City-Riyadh, Feb2007-Feb 2008.

Volunteer work

- Arabic/English translator in MCRS, Kitchener, ON, November 2015-April 2017.

Publications/Presentations

- JoonOh Seo, Abdullatif Alwasel, Eihab Abdel-Rahman, Carl T. Haas, and SangHyun Lee. "A Comparative Study of Motion Capture Approaches for Ergonomic Evaluation during Construction Tasks". Robotica, (Submitted) 2016.
- Abdullatif Alwasel, Ali Sabet, Mohammad Nahangi, Carl T. Haas, and Eihab Abdel-Rahman. Identifying Safe and Productive Masons Using Machine Learning. Automation in Construction, (Submitted), 2017.
- Abdullatif Alwasel, JuHyeong Ryu, Carl T. Haas, and Eihab Abdel-Rahman. Level-of-expertise classification for identifying safe and productive masons. to International Workshop on Computing for Civil Engineering (IWCCE) Seattle, WA, USA, from June 25th - June 27th, 2017.
- Abdullatif Alwasel, Mohammad Nahangi, Carl T. Haas, and Eihab Abdel-Rahman. "Improving Health and Productivity of Construction Workers: A New Toolkit" to the 13th Canadian Masonry Symposium, Halifax, Canada, June 4th - June 7th, 2017.

- Alwasel, Abdullatif, et al. "Experience, Productivity, and Musculoskeletal Injury among Masonry Workers." *Journal of Construction Engineering and Management* 143.6 (2017): 05017003.
- Abdullatif Alwasel, Marcus Yung, Eihab M. Abdel-Rahman, and Richard P. Wells. "Fatigue Detection Using Phase-Space Warping". *Journal of Biomechanical Engineering*, 139 (3) 2017.
- Abdullatif Alwasel, Eihab M. Abdel-Rahman, and Carl T. Haas. "A Technique to Detect Fatigue in the Lower Limbs". In Volume 8: 26th Conference on Mechanical Vibration and Noise, Buffalo, NY, Aug 2014.
- Abdullatif Alwasel, Karim Elrayes, Eihab M. Abdel-Rahman, and Carl Haas. "A Human Body Posture Sensor for Monitoring and Diagnosing MSD Risk Factors," in International Symposium on Automation and Robotics in Construction (ISARC) August 2013.
http://www.iaarc.org/publications/proceedings_of_the_30th_isarc/a_human_body_posture_sensor_for_monitoring_and_diagnosing_msd_risk_factors.html
- A. Alwasel, K.Elrayes, E. Abdel-Rahman, C.Haas, "Reducing shoulder injuries among construction workers," *Gerontechnology*, Vol 11, no. 2, p.333, 2012.
- Abdullatif Alwasel., "A Monitoring System to Reduce Shoulder Injury Among Construction Workers," MASc thesis, University of Waterloo, Waterloo, Canada, 2011.
- Abdullatif Alwasel, Karim Elrayes, Eihab M. Abdel-Rahman, and Carl Haas. "Sensing Construction Work-related Musculoskeletal Disorders (WMSDs)," in International Symposium on Automation and Robotics in Construction (ISARC) June 2011
http://www.iaarc.org/publications/proceedings_of_the_28th_isarc/sensing_construction_workrelated_musculoskeletal_disorders_wmsds.html.

References

Dr. Eihab M. Abdel-Rahman

Professor

Systems Design Engineering, University of Waterloo

200, University Ave West,

Waterloo, Ontario N2L 3G1, Canada. Phone: (519) 888-4567 ext. 37737

Fax: (519) 746-4791

Email: eihab@uwaterloo.ca

Dr. Carl. T. Haas

Professor

Department of Civil Engineering, University of Waterloo

200, University Ave West,

Waterloo, Ontario N2L 3G1, Canada. Tel: (519) 888-4567 ext 35492

Fax: (519) 888-4300

Email: chaas@uwaterloo.ca