

REDWAN M. ALQASEMI

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Education:

Ph.D. 2007 Mechanical Engineering, University of South Florida, USA
M. S. 2001 Mechanical Engineering, Wichita State University, USA
B. S. 2005 Mechanical Engineering, King Abdulaziz University, KSA

Experience:

2007 - Present Assistant Professor, King Abdulaziz University, Jeddah, Saudi Arabia.
2004 - 2007 Head of Research Division, Center for Rehabilitation Engineering and Technology, University of South Florida, Tampa, Florida, USA.
2003 - 2004 Researcher, Center for Rehabilitation Engineering and Technology, University of South Florida, Tampa, Florida, USA.
2001 - 2003 Instructor, University of South Florida, Tampa, Florida, USA.
1998 - 2001 Graduate Research and Teaching Assistant, Wichita State University, Wichita, Kansas, USA.
1995 - 1996 Teaching Assistant, King Abdulaziz University, Jeddah, Saudi Arabia.
1994 - 1994 Engineer, Aluminum Products Company, Jeddah, Saudi Arabia.
1993 - 1993 Engineer, ARAMCO Oil Products Company, Jeddah, Saudi Arabia.

Courses Taught:

Introduction to Robotics; Advanced Robotic Manipulators; Mechanical Vibrations; Foundations of Engineering; Mechanical Labs.

Research Interests:

Robotics and telerobotic applications in: healthcare, space, undersea, underground, nuclear waste management and aircraft maintenance; Design, simulation and testing of haptic interfaces and assistive devices for persons with disabilities; rehabilitation engineering; Smart electro-mechanical systems and mechatronics; Dynamic systems and controls; Mechanical Vibrations.

Honors and Awards:

- Sheik Bin Dawood Monetary Award for Best Graduating Student at the University, King Abdulaziz University, Jeddah, Saudi Arabia, 1994;
- College of Engineering Award for Best Graduating Student, King Abdulaziz University, Jeddah, Saudi Arabia, 1994;
- BOEING Best Project Award for Aircraft Maintenance, Wichita State University, Wichita, KS, USA, 2001;
- Raytheon Aircraft Best Project Award for Aircraft Maintenance, Wichita State University, Wichita, KS, USA, 2001;
- Best Showcase Award for FCRAR 2006, University of Miami, Miami, FL, USA, 2006;
- Center for Rehabilitation Engineering and Technology Award for Promoting Research and Services for Individuals with Disabilities, University of South Florida, Tampa, FL, USA, 2006;
- Outstanding Dissertation Award, University of South Florida, Tampa, FL, USA, 2007.
- Best Application Paper Award, ASME-IMECE, Seattle, WA, USA, 2007.

Professional/Institutional Activities:

Memberships: American Society for Mechanical Engineers (ASME); The Institution of Electrical and Electronics Engineers (IEEE), Robotics and Automation Society.

Honorary Memberships: The Engineering Honor Society Tau-Beta-Pi; The Honor Society of Kappa-Phi-Kappa.

Chairman: Organizing Committee of the 20th Florida Conference on Recent Advances in Robotics and Robot Showcase (FCRAR), 2007, Tampa, Florida, USA.

Session Chair at Major Regional and International Conferences: Chaired sessions at IEEE International Conference on Robotics and Automation (ICRA); International Symposium on Computational Intelligence in Robotics and Automation (CIRA); The Florida Conference on Recent Advances in Robotics and Robot Showcase (FCRAR).

Judge: The American Society for Mechanical Engineers (ASME) National Robotics Design Competition.

Reviewer:

- IEEE Transactions on Robotics and Automation;
- IEEE International Conference on Robotics and Automation (ICRA);
- IEEE International Conference on Intelligent Robots and Systems (IROS);
- IEEE Conference on Automation Science and Engineering (CASE);
- IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA);
- IEEE International Conference on Rehabilitation Robotics (ICORR);
- IEEE International Conference on Advanced Intelligent Mechatronics (AIM);
- International Conference on Robotics and Applications (IASTED-RA);
- ASME International Mechanical Engineering Congress & Exposition (IMECE);
- The Florida Conference on Recent Advances in Robotics and Robot Showcase (FCRAR).

Recent Sample Publications:

- [1] R. Alqasemi, E. McCaffrey, K. Edwards, R. Dubey, “Kinematic Analysis, Evaluation and Development of Wheelchair-Mounted Robotic Arms”. *GESTS International Transactions on Computer Science and Engineering*, vol. 25, No. 1, pp. 49-60, December 2005.
- [2] W. Yu, R. Alqasemi, R. Dubey, N. Pernalet, “Telemanipulation Assistance Using Hidden Markov Model Motion Intention Recognition”. *GESTS International Transactions on Computer Science and Engineering*, vol. 25, No. 1, pp. 73-84, December 2005.
- [3] R. Alqasemi, E. McCaffrey, K. Edwards, R. Dubey, “Kinematic Analysis, Evaluation and Development of a New Wheelchair-Mounted Robotic Arm”. *International Journal of Assistive Robotics and Mechatronics / Human-friendly Welfare Robotic Systems (ARM/HWRS)*, vol. 7, No. 2, pp. 31-38, June 2006.
- [4] B. Bahr, R. Alqasemi, “Design of an Internal Pipe Worm Robot”. *Proceedings of the 8th International Symposium on Robotics with Applications (ISORA 2000), in the 2000 World Automation Congress (WAC 2000)*, June 11-16, 2000, Wailea, Maui, HI, USA.
- [5] E. McCaffrey, R. Alqasemi, R. Dubey, “Kinematic Analysis and Evaluation of Wheelchair Mounted Robotic Arms”. *Proceedings of the 2004 Florida Conference on Recent Advances in Robotics and Robot Showcase (FCRAR 2004)*, May 6-7, 2004, Orlando, FL, USA.
- [6] E. McCaffrey, R. Alqasemi, R. Dubey, “Wheelchair Mounted Robotic Arms: Kinematic Analysis and Evaluation”. *Proceedings of the 10th IASTED International Conference on Robotics and Applications (IASTED-RA 2004)*, pp. 28-33, August 23-25, 2004, Honolulu, HI, USA.
- [7] E. McCaffrey, R. Alqasemi, R. Dubey, “Kinematic Analysis and Evaluation of Wheelchair Mounted Robotic Arms”. *Proceedings of the 2004 IMECE International Mechanical Engineering Congress & Exposition (IMECE 2004)*, November 13-19, 2004, Anaheim, CA, USA.
- [8] W. Yu, R. Alqasemi, R. Dubey, N. Pernalet, “Telemanipulation Assistance Based on Motion Intention Recognition”. *Proceedings of the 2005 IEEE International Conf. on Robotics and Automation (ICRA 2005)*, pp. 1121-1126, April 18-22, 2005, Barcelona, Spain.
- [9] R. Alqasemi, E. McCaffrey, K. Edwards, R. Dubey, “Analysis, Evaluation and Development of Wheelchair-Mounted Robotic Arms”. *Proceedings of the 2005 International Conference on Rehabilitation Robotics (ICORR 2005)*, pp. 469-472, June 28 – July 1, 2005, Chicago, IL, USA.
- [10] R. Alqasemi, E. McCaffrey, K. Edwards, R. Dubey, “Wheelchair-Mounted Robotic Arms: Analysis, Evaluation and Development”. *Proceedings of the 2005 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2005)*, pp. 1164-1169, July 24-28, 2005, Monterey, CA, USA.
- [11] S. Sundarrao, R. Alqasemi, E. McCaffrey, R. Dubey, “Robotics Technologies For Individuals With Disabilities And Their Impact On The Aging Population”. *Proceedings of the 2006 International Conf. on Aging, Disability and Independence (ICADI 2006)*, February 1-5, 2006, St. Petersburg, Florida, USA.

- [12] K. Edwards, R. Alqasemi, R. Dubey, "Wheelchair-Mounted Robotic Arms: Design and Development". *Proceedings of the first IEEE / RAS-EMBS 2006 International Conf. on Biomedical Robotics and Biomechatronics (BioRob 2006)*, pp. 613-618, February 20-22, 2006, Pisa, Italy.
- [13] S. Sundarrao, R. Alqasemi, E. McCaffrey, R. Dubey, "Selection Considerations and a Comparison of Commercial Wheelchair Mounted Robotic Arms". *Proceedings of the 3rd Cambridge Workshop on Universal Access and Assistive Technology (CWUAAT)*, pp. 97-104, April 10-12, 2006, Cambridge, United Kingdom.
- [14] K. Edwards, R. Alqasemi, R. Dubey, "Design, Construction and Testing of a Wheelchair-Mounted Robotic Arm". *Proceedings of the 2006 IEEE International Conf. on Robotics and Automation (ICRA 2006)*, pp. 3165-3170, May 15-19, 2006, Orlando, Florida, USA.
- [15] S. Sundarrao, R. Alqasemi, E. McCaffrey, R. Dubey, "Selection Considerations and a Comparison of Commercial Wheelchair Mounted Robotic Arms". *Proceedings of the 2006 Florida Conference on Recent Advances in Robotics and Robot Showcase (FCRAR 2006)*, May 25-26, 2006, Miami, FL, USA.
- [16] R. Alqasemi, K. Edwards, R. Dubey, "Design, Construction and Control of a 7 DoF Wheelchair-Mounted Robotic Arm". *Proceedings of the 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2006)*, pp. 19-24, October 2-15, 2006, Beijing, China.
- [17] R. Alqasemi, R. Dubey, "Combined Mobility and Manipulation Control of a Newly Developed 9-DoF Wheelchair-Mounted Robotic Arm System". *Proceedings of the 2007 IEEE International Conf. on Robotics and Automation (ICRA 2007)*, April 10-14, 2007, Rome, Italy.
- [18] R. Alqasemi, R. Dubey, "Maximizing Manipulation Capabilities for People with Disabilities Using a 9-DoF Wheelchair-Mounted Robotic Arm System". *Proceedings of the 2007 International Conference on Rehabilitation Robotics (ICORR 2007)*, June 13-15, 2007, Noordwijk, Netherlands.
- [19] R. Alqasemi, S. Mahler, R. Dubey, "Design and Construction of a Robotic Gripper for Activities of Daily Living for People with Disabilities". *Proceedings of the 2007 International Conference on Rehabilitation Robotics (ICORR 2007)*, June 13-15, 2007, Noordwijk, the Netherlands.
- [20] R. Alqasemi, R. Dubey, "Redundancy Control and Optimization of a 9-DoF Wheelchair-Mounted Robotic Arm System". *Proceedings of the 7th International Symposium on Computational Intelligence in Robotics and Automation (CIRA 2007)*, June 20-23, 2007, Jacksonville, FL, USA.
- [21] R. Alqasemi, R. Dubey, "A New 9-DoF Mobile Robotic Device to Enhance the Capabilities of People with Disabilities". *Proceedings of the 2007 IMECE International Mechanical Engineering Congress & Exposition (IMECE 2007)*, November 10-16, 2007, Seattle, WA, USA.
- [22] R. Alqasemi, S. Mahler, R. Dubey, "The Design of a Dexterous Gripper to be Used for Activities of Daily Living by People with Upper-Extremity Disabilities". *Proceedings of the 2007 IMECE International Mechanical Engineering Congress & Exposition (IMECE 2007)*, November 10-16, 2007, Seattle, WA, USA.
- [23] R. Alqasemi, R. Dubey, "Weighted Singularity-Robust Inverse with Criterion Function Optimization of Redundant Mobile Manipulators in 3-D Space with Defense Applications". *Proceedings of the 2008 SPIE Defense and Security Symposium (SPIE 2008)*, March 16-20, 2008, Orlando, FL, USA.