



## **Curriculum Vitae**

# **Hani Haider**

*B.Eng., Ph.D., C.Eng., M.I.Mech.E.*

- ***Professor in Orthopaedic Surgery Research and Director of Biomechanics, Implant Technology and Advanced Surgical Technology Laboratory***
- ***Winner of 9 academic and international prizes in engineering and orthopaedics research.***
- ***Ph.D. in Mechanical Engineering (England)***
- ***Internationally recognised expertise in Orthopaedic implant simulation and testing.***
- ***Leader of over 35 industry, government and private sponsored research projects in Biomedical Engineering, with grants and contracts totalling over \$6 million.***
- ***Consultant on implant testing methods, instrumentation and related technologies.***
- ***Author of over 200 publications and international conference presentations in orthopaedics technology research and engineering.***

## **Offices and professional memberships held**

- Chair, Total Ankle Replacement Testing Standards Committee, ASTM International
- Co-Chair, Total Knee Wear Testing Standards Committee, ASTM International.
- Program Director, International Society of Technology in Arthroplasty (ISTA)
- Member of the Board of Directors, International Society of Technology in Arthroplasty (ISTA)
- Consultant, Biomedical Engineering Committee, The American Academy of Orthopaedic Surgeons (AAOS).
- Editorial Board member, Journal of Engineering In Medicine, Part H, IMechE Part H.
- Chair, Biotechnology Committee, Iraqi American Academic and Professional Community program, Iraqi Cultural Center, Washington DC.
- Chair, Education Committee, 22 Annual Congress of (ISTA), Hawaii, 2009.
- Chair, Expert Group revising knee wear testing standards, International Standards Organisation.
- Member of the United States delegation to committee SC 150 (Medical Devices) of the International Standards Organisation.
- Reviewer for the Journal of Orthopaedic Research
- Reviewer for the Journal of Engineering in Medicine
- Chairman, Heartland Biomedical Engineering Symposium – 2005.
- Member of the organizing committee of the Nebraska Biomedical Engineering Workshop.
- Chartered Engineer - Member of the Engineering Council (UK).
- Member of the Institution of Mechanical Engineers (I.Mech.E) (UK).
- Member of the American Society of Testing and Materials (ASTM).
- Member of the International Society of Technology in Arthroplasty (ISTA).
- Member of the Orthopaedic Research Society (ORS)

## **Honors & Awards**

- 2006 Received the ***Outstanding Professional Achievement*** award by the University of Nebraska Medical Center. (Only one of two faculty members in the year to be honored separately under both the “Special” and “Outstanding” categories.)
- 2006 Received the ***Special Professional Achievement*** award by the University of Nebraska Medical Center.
- 2005 Winner of the ***“Hap Paul Award”*** for the best research paper “... on new development in the field of orthopaedic arthroplasty” at the 18th Annual Symposium for The International Society for Technology in Arthroplasty, Kyoto, Japan 2005.
- 2005 Received the ***“ASTM Robert Fairer Award”*** bestowed by the American Society of Testing and Materials on Medical and Surgical Materials and Devices for “.... great contributions to the development of medical device and materials standards.”
- 1987 Winner of ***“KLINGER International Research Prize”*** awarded for outstanding scientific work and contribution to related industries. International competition organised by the Klinger Group of companies and judged by the Austrian Research Centre, Siebersdorf.
- 1985 Winner of the ***“G.P. Smedley Prize in Mechanical Engineering”*** for best PhD research.
- 1983 Winner of the ***“Baker Prize in Engineering”*** for best university research project work.
- 1982 Winner of the ***“Mechanical Engineers Prize”*** awarded for best university results.

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### **Educational qualifications**

- 1990 Ph.D.—University of Sheffield — Dept. Mechanical & Process Engineering. Sponsored by the "Ruston and Hornsby Scholarship in Mechanical Engineering".  
Thesis title: "Internal Static and Dynamic Phenomena in Vortex Amplifiers".
- 1983 B.Eng. Honours MECHANICAL ENGINEERING Class II:1  
The University of Sheffield, Department of Mechanical Engineering.
- 1980 GCE 'A' levels (Cambridge Board): Mathematics, Further Mathematics and Physics.  
Cambridgeshire College of Arts and Technology, Cambridge, England.

### **Employment History**

- July 2008 — present Professor, Director of Orthopaedics Biomechanics and Advanced Surgical Technologies Laboratory, Department of Orthopaedic Surgery & Rehabilitation, University of Nebraska Medical Center.
- March 2000 — June 2008 Associate Professor — Department of Orthopaedic Surgery & Rehabilitation, University of Nebraska Medical Center.
- March 2002 — present Adjunct Associate Professor – Department of Mechanical Engineering – University of Nebraska at Lincoln.
- Feb. 1997— Feb 2000 University Lecturer — Centre for Biomedical Engineering, University College London Medical School, Stanmore, England.
- Feb. 1995—Feb. 1997 Company Director and Consultant — Prosort Ltd. as Management and IT Consultants for Anglo-Swiss Maritime Co. Ltd., City —London.
- Oct. 1990— Jan. 1995 University Lecturer — Department of Mechanical & Process Engineering, University of Sheffield  
and Company Director and Consultant — Prosort Ltd. / Sheffield as consultants for various companies
- Oct. 1988—Sept.1990 Post-Doctoral Research Associate—Shell (Expro) & University of Sheffield.

### **Current University Committee Assignments**

- Faculty member – Center for Advanced Surgical Technology (CAST) – University of Nebraska. Sept 2006 till present.
- Member of the Departmental Research Committee which quarterly reviews research projects of all 24 residents - Nov. 2007 till present.
- UNMC Departmental UneMed Faculty Advocate – representative to UneMed on intellectual property, patenting and licensing issues. Feb 2007 till present.
- Member of the MSIA Graduate Committee (Medical Sciences Interdepartmental Area) and Departmental coordinator for the (MSIA) PHD program – Jan. 2007 till present.

## **Research Interests**

Prior to Feb. 1997, my engineering specialty and research started with fluid technology and applications of Fluidics in the nuclear and oil industry. I successfully modelled and tested the statics and dynamics of Vortex Amplifiers for the United Kingdom Atomic Energy Authority (UKAEA) where I pioneered software developments for modelling, instrument control and automation. I then designed and built two large experimental test facilities for Shell/UK Exploration and Production and Shell KSEPL/Holland (budget over £300k). I became the Departmental Specialist on general computer interfacing and software development, and later moved to mechatronic applications for learning, medical, and manufacturing engineering. I consulted for a world-leading manufacturer of portable hole-drilling machines where I led a team to develop hardware and software for a micro-processor-driven feed system for their new generation of hole drilling products, which featured expert-system automation & control. I also led a team to produce a software package for planning and simulation of orthopaedic surgical operations involving 2-D scanned x-rays and 3-D graphical bone models. This project sparked an interest in orthopaedic implant and surgical technology.

In University College London in Stanmore (1997-2000), reporting to Professor Peter Walker, I headed a task force responsible for the Design and production of the Stanmore Knee Simulator (which was later called the Instron-Stanmore). I produced 13 machines in our laboratories and sold to leading knee testing labs in the USA and Europe and liaised later with the Instron Corporation who acquired a licence for the design. I also trained the biomedical engineers in all the labs who now possess this machine. I was also the chief faculty-engineer in Stanmore for contract and government funded knee testing. One project involved a consortium of companies all the blue chip companies to develop the International Standards Organisation (ISO) test method for knee wear testing. Another project was sponsored by the UK Department of Health with another consortium involving 59 short in-vitro simulator tests to investigate the kinematics of 8 different TKR designs and their sensitivity to surgical misalignment. Another project was the "Lifetime prediction tests for the fatigue performance of knee tibial trays" with a grant from the UK Government Department of Trade and Industry and a consortium of over 10 orthopaedics manufacturing companies. I also then started planning various research activities on minimally invasive surgery, computer-aided surgical planning and simulation and future robotic surgery. In 3 years I spent at Stanmore/ UCL, I have jointly with colleagues secured 5-6 different funding contracts and grants which exceed £250,000 (> \$400,000) in value.

In Nebraska, my current research interests center around two main themes, the first is the development of methods for in-vitro testing of orthopaedic implants, and the second is development of innovative computer-aided surgical technologies. The latter included navigated freehand bone cutting which my research team has pioneered and widely promoted internationally. In this position alone, since 2000, I have received over 30 research grants and contracts totalling over 6 million dollars.

## **Patents**

1. Method and Apparatus for Computer Aided Orthopaedic Surgery  
**Docket No:** 63254P      **Serial No:** 60/814,370      **File Date:** 6/16/2006      **File Type:**  
Provisional  
**Inventor:** Hani Haider & O. Andres Barrera
2. Method and Apparatus for Computer Aided Surgery  
**Docket No:** 63254P2      **Serial No:** 60/827,877      **File Date:** 10/2/2006      **File Type:**  
Provisional  
**Inventor:** Hani Haider & O. Andres Barrera
3. Method and Apparatus for Computer Aided Surgery  
**Docket No:** 63254      **Serial No:** 11/764,505      **File Date:** 6/18/2007      **File Type:**  
Nonprovisional  
**Inventor:** Hani Haider & O. Andres Barrera
4. Method and Apparatus for Computer Aided Surgery  
**Docket No:** 63254.1      **Serial No:** 11/927,429      **File Date:** 10/29/2007      **File Type:**  
Nonprovisional  
**Inventor:** Hani Haider & O. Andres Barrera

## **Interests and Activities**

I ride horses and play tennis when I find the environment, and swim or work out (somewhat irregularly) indoors instead when I cannot. I enjoy boating in the summer. I like watching good films, going to the theatre and listening to music especially classical, folk and ethnic Middle Eastern. I am also an avid follower of international current affairs and the financial press.

I was a founding member and a participant in the 1983 British Expedition to the Sudan/Africa. As a team of six British graduates, we drove to Africa from Sheffield/England to the Sudan. We tested an intermediate-technology solar powered cooker which we designed with potential to reduce desertification in middle Africa due to wood burning as fuel for cooking.

## Appendix

### Dr. H. Haider — List of Publications

#### **Chapters in books**

1. Eames, I.W., A.R. Johnson, T. Hobbs, H. Haider and I.C. Howard, "Computer Based Learning Developments in Mechanical Engineering at Sheffield University", Software for Engineering Education, Pub. CTI Centre for Engineering, Queen Mary and Westfield College, London Autumn 1993.
2. I.W. Eames, T. Hobbs, I.C. Howard, A.R. Johnson, and H. Haider, "The Energy Game: An Interactive Computer Aided Learning Package". Chapter in book "Alternative Approaches to Teaching Engineering", Volume 1, Ivan Moore and Kate Exley (Eds.), Pub. by Engineering Professors' Council with UCoSDA, 1994.
3. Blunn, G.W., Bell, C.J., Walker, P.S. Chatterjee, S., Perry, J., Cambell, P., Haider, H., and Paul, J.P., "Simulator Testing of Total Knee Replacements", Chapter 9 in: Friction, Lubrication and Wear of Artificial Joints, edited by I.M. Hutchings. Professional Engineering Publishing - 2003. ISBN 1 86058 363 6.
4. Haider, H, Walker, P, DesJardins, J, Blunn, G, "Effects of Patient and Surgical Alignment Variables on Kinematics in TKR Simulation Under Force-Control", Chapter 1, in Wear of Articulating Surfaces: Understanding Joint Simulation, Eds. Brown, Gilbertson and Good, ISBN: 0-8031-3415-0, ASTM International, PA, USA, Feb 2007.
5. Haider, H., Tribological Assessment of UHMWPE in the Knee, Chapter 26 in: Steven M. Kurtz, Ph.D., Editor(s), "UHMWPE Biomaterials Handbook" (Second Edition), Academic Press, 2009, pp 381-408.

#### **Articles published in peer reviewed scholarly journals**

6. Boysan, F., Savas, D., Cardew, G., Haider, H, and Bullough, B., "Computer Experiments in the Fluids Laboratory", International Journal of Mechanical Engineering Education. Vol. 23, No. 1, pp. 31-40, Jan. 1995, Manchester University Press.
7. Beck, S.B.M., Haider, H., and Boucher R.F., "Transmission Line modelling of Simulated Drill Strings Undergoing Water Hammer", Journal of Mechanical Engineering Science, Issue C6, Vol 209, 1995, Mechanical Engineering Publications Ltd.
8. Aphornratana, S., Eames, I.W. and Haider, H., "A theoretical and experimental study of a small scale steam jet refrigerator", International Journal of Refrigeration, 18:6 or 18:7, Aug/September 1995, Elsevier Science Ltd.
9. Ahir, SP, Blunn, GW, Haider, H., Walker, PS, Browne, M and Gregson, PJ. "In kneed of testing" *Materials World*, Volume 6, No. 12, Dec. 1998.
10. Ahir, S.P., Blunn, G.W., Haider, H. and Walker, P.S. "Evaluation of testing method for the fatigue performance of total knee tibial trays." *Journal of Biomechanics*. Vol 32, 1999, 1049—1057.

11. Walker P S, Blunn GW, Perry J P, Bell C J, Sathasivam S, Andriacchi T P, Paul J P, Haider, H, Campbell P. "Methodology for long term wear testing of total knee replacements". *Clinical Orthopaedics and Related Research*, Number 372, pp. 290-301, March 2000.
12. DesJardins JD, Walker PS, Haider, H. and Perry J. "The use of a force-controlled dynamic knee simulator to quantify the mechanical performance of total knee replacement designs during functional activity". *Journal of Biomechanics*, Vol. 33, No. 10, 1231-1242, Oct. 2000.
13. Walker, PS, Haider, H, "Characterizing the Motion of Total Knee Replacements in Laboratory Tests", *Journal of Clinical Orthopaedics and Related Research*, Vol. 410, pp. 54-68, May 2003.
14. Verner L, Oleynikov D, Holtmann S, Haider H, Zhukov L., "Measurements of the level of surgical expertise using flight path analysis from da Vinci robotic surgical system", *J. Studies in health technology and informatics*, 2003; 94:373-8.
15. Haider, H and Walker, PS, "Measurements of Constraint of Total Knee Replacement", *Journal of Biomechanics*, Vol. 38, Iss. 2, pp341-348, Feb 2005.
16. Platt, S.R., Farritor, S, Garvin K. and Haider, H., "On Low Frequency Electric Power Generation with PZT", MT03-101R, IEEE/ASME, *Journal of Transactions on Mechatronics*, pp 240-252, Vol. 10, No. 2, April 2005.
17. Platt, S.R., Farritor, S., Garvin, K. and Haider, H., "The Use of Piezoelectric Ceramics for Electric Power Generation Within Orthopedic Implants"; *IEEE/ASME Journal of Transactions on Mechatronics*, vol. 10, no. 4, pp. 455-461, August 2005.
18. Haider H., Walker P., DesJardins J., Blunn G., "Effects of Patient and Surgical Alignment Variables on Kinematics in TKR Simulation Under Force-Control", *Journal of ASTM International (JAI)*, Volume 3, Issue 10, pp. 3-14, Nov./Dec. 2006.
19. Namavar, F., Jackson, J.D. , Sharp, J.G., Varma, S., Haider, H., Feschuk, C. and Garvin, K.L., "Novel Engineered Nanocrystalline Ultra-Hydrophilic Hard Ceramic Coatings for Attachment and Growth of Bone Marrow Stromal Cells", *J. Molecular & Cellular Biomechanics*, Vol. 3, No. 4, p.p. 171-172, 2006.
20. Tarkin IS, Mormino MA, Clare MP, Haider H, Walling AK, Sanders RW: "Anterior Plate Supplementation Increases Ankle Arthrodesis Construct Rigidity", *J. Foot Ankle Int.*, Vol. 28, No. 2, p.p. 219-23. 2007.
21. Namavar, F.; Jackson, J.D.; Sharp, J.G.; Mann, E.E.; Bayles, K.; Cheung, C.L.; Feschuk, C.; Varma, S.; Haider, H.; Garvin, K.L., "Searching for Smart Durable Coatings to Promote Bone Marrow Stromal Cell Growth While Preventing Biofilm Formation", *Published proceedings of Mater. Res. Soc. Symp.*, Paper 0954-H04-04, Vol. 954, 2007.
22. Knight, L.A., Pal, S., Coleman, J.C., Bronson, F, Haider, H., Levine, D.L., Taylor, M., Rullkoetter, P.J., "Comparison of long-term numerical and experimental total knee replacement wear during simulated gait loading", *Journal of Biomechanics*, Vol. 40, No. 7, pp. 1550-1558, 2007.
23. Haider, H., Barrera, O.A., Garvin, KL, "Minimally invasive TKR surgery through navigated freehand bone cutting: Winner of the 2005 "HAP" PAUL AWARD", *Journal of Arthroplasty*, Vol. 22, Issue 4, pp. 535-542, June 2007.

24. Namavar, F., Wang, G., Cheung, C.L., Sabirianov, R.F., Zeng, X.C., Mei, W.N. Bai, J., Brewer, J.R., Haider, H. and Garvin, K.L., "Thermal stability of nanostructurally stabilized zirconium oxide", *J. Nanotechnology*, Volume 18, Number 41, 415702 (6pp), Oct. 2007.
25. Pal, S., Haider, H., Laz. P., Knight, L.A., Rullkoetter, P.J., "Probabilistic Computational Modeling of Total Knee Replacement Wear", *J. Wear*, Vol. 264, 2008, pp. 701–707.
26. Barrera, O.A., Haider, H. and Garvin, K.L., "Towards a standard in assessment of bone cutting for Total Knee Replacement", *Proc. IMechE, Part H: J. Engineering Medicine*, 2008, 222(H1), 63-74.
27. Wang, G.; Brewer, J. R.; Namavar, F.; Sabirianov, R. F.; Haider, H.; Garvin, K. L.; Cheung, C. L., "Structural study of titanium oxide films synthesized by ion beam assisted deposition", *J. Scanning*, Vol.. 30, pp. 59–64, 2008.
28. Namavar, F., Cheung, C.L., Sabirianov, R.F., Mei, W.N., Zeng, X.C., Wang, G., Haider, H., and Garvin, K.L., "Lotus Effect in Engineered Zirconia", *J. Nano Letters*, 2008, Vol. 8, No. 4, pp. 988-996.
29. Haider H, Garvin K. Rotating Platform versus Fixed-bearing Total Knees - An in Vitro Study of Wear. *J. Clinical Orthop. Relat. Res.*, 2008; Vol. 466, pp. 2677-2685.
30. Soo, Y.L., Chen, P.J., Huang, S.H., Shiu, T.J., Tsai, T.Y., Chow, Y.H., Lin, Y.C., Weng, S.C., Chang, S.L., Wang, G., Cheung, C.L., Sabirianov, R.F., Mei, W.N., Namavar, F. Haider, H., Garvin, K.L. Lee, J.F., Lee, H.Y., and Chu, P.P., "Local structures surrounding Zr in nanostructurally stabilized cubic zirconia: Structural origin of phase stability", *J. Appl. Phys.* 104, 113535 (2008).
31. Lian J., Zhang J., Namavar F., Zhang Y., Lu F., Haider H., Garvin K., Weber W.J., Ewing R.C., "Ion beam-induced amorphous-to-tetragonal phase transformation and grain growth of nanocrystalline zirconia", *Nanotechnology*. 2009 Jun 17;20(24):245303.

**Peer-reviewed international conference and proceedings research papers and abstracts**

32. Boucher, R.F., Boysan, F. and Haider, M.H.S., "Theoretical Computer Simulations of Swirling Flow in a Vortex Amplifier Chamber", Paper N:2, pp. 370-374, Volume of papers presented at the 2nd. International Symposium on Fluid Control, Measurement, Mechanics and Flow Visualisation (Flucome '88), Sheffield, U.K., September, 1988.
33. Haider, M.H.S. and Boucher, R.F., "Towards a steady-state model for the Vortex Amplifier", Volume of papers presented at the American Society of Mechanical Engineers (ASME), 3rd. International Symposium on Fluid Control, Measurement, Mechanics and Flow Visualisation (Flucome '91), San Francisco, USA, Aug. 1991.
34. Haider, M.H.S. and Boucher, R.F., "Structures for algorithms for automating LDA measurements", *Proceedings of the Fifth International Conference, Laser Anemometry - Advances and Applications*, Koningshof, Veldhoven, The Netherlands, Aug. 1993.
35. Beck, S.B.M., Boucher, R.F. and Haider, H., "Modelling Water Hammer with Transmission Line Techniques", *Proc. 1994 IChemE Research Event*, Vol. 2, Jan. 1994, London.

36. Haider, H., Johnson, A.R., Hobbs, T.S. and Eames, I.W., "A Computer Aided Learning Tool to Teach Gyroscopic Motion", pp 161-168, Proceedings of *Hypermedia in Vaasa '94*, Conference on Computers and Hypermedia in Engineering Education, ISBN 951-96789-1-3, June 1994, Vaasa, Finland.
37. Eames, I.W., Hobbs, T.S., Johnson, A.R., and Haider, H., "The Development of an Innovative CAL Package: 'The Energy Game' ", pp 123-127, Proceedings of *Hypermedia in Vaasa '94*, Conference on Computers and Hypermedia in Engineering Education, ISBN 951-96789-1-3, June 1994, Vaasa, Finland.
38. Tippetts, J.R. and Haider, H., "Analysis and Optimisation of a Fluidic Hydraulic Ram", Proceedings of the Fourth International Symposium on Fluid Control, Measurement and Visualisation, Toulouse, France, Aug. 1994.
39. Kamala, M.A., Boucher, R.F. and Haider, H., "Integration of AutoCad with Laser Doppler Anemometry (LDA)", Proceedings of EALA/ASME International Conference, Laser Anemometry - Advances and Applications, South Carolina, USA Aug. 1995.
40. Ahir, S.P., Blunn, G.W., Haider, H. and Walker, P.S. "Validation of the proposed ISO test for tibial trays", Proceedings of the *11th Annual Symposium, International Society for Technology in Arthroplasty [ISTA]*, Marseille, France, p.76, October 1998.
41. Des Jardins, J.D., Haider, H., Perry, J. and Walker, P.S. "The Kinematic testing of multiple TKR designs using a force controlled walking cycle", Proceedings of the *11th Annual Symposium, International Society for Technology in Arthroplasty [ISTA]*, Marseille, France, pp. 86-87, October 1998.
42. Haider, H., Walker, P.S., Blunn, G.W., Perry, J. and Des Jardins, J. "A four channel force control knee simulator: from concept to production." Proceedings of the *11th Annual Symposium, International Society for Technology in Arthroplasty [ISTA]*, Marseille, France, pp 213-14, October 1998.
43. Ahir, S.P., Blunn, G.W., Haider, H. and Walker, P.S. "Evaluating a testing method for the fatigue failure of tibial baseplates." *Transactions of the Orthopaedics Research Society*. 24: 963, Anaheim, Feb. 1999.
44. Blunn, G.W., Walker, P.S., Perry, J., Bell, C., Haider, H. and Campbell, P. "Performance of a knee simulating machine." *Transactions of the International Conference on Knee Replacement 1974-2024*, pp. 112—116, IMechE, London, 22-24 April 1999.
45. Ahir, S.P., Walker, P.S., Browne, M., Gregson, P.J., Haider, H. and Blunn, G.W. "Standardised testing for the fatigue strength of tibial trays." *Transactions of the International Conference on Knee Replacement 1974-2024*, pp. 108—111, IMechE, London, 22-24 April 1999.
46. Ahir, S.P., Blunn, G.W., Haider, H. and Walker, P.S. "Standardised testing for the fatigue strength of tibial trays." *Transactions of the 9th Conference of the European Orthopaedic Research Society (EORS)*, P27. Brussels, 1999.
47. DesJardins, J.D., Walker, P.S, Haider, H. and Perry, J. "An analysis of tibial component and soft tissue shear loads during a force controlled walking cycle for multiple TKR designs." *Transactions of the 9th Conference of the European Orthopaedic Research Society (EORS)*, O22, Brussels, 1999.

48. DesJardins, J.D., Walker, P.S, Haider, H. and Perry, J. "The influence of soft tissue constraint on the mechanical performance of different TKR designs." Transactions of the *9th Conference of the European Orthopaedic Research Society (EORS)*, O25, Brussels, 1999.
49. DesJardins, J.D., Walker, P.S, Haider, H. and Perry, J. "A comparison between the uni-axial and dynamic walking cycle laxities of multiple TKR designs." Transactions of the *9th Conference of the European Orthopaedic Research Society (EORS)*, P32, Brussels, 1999.
50. DesJardins, J.D., Walker, P.S, Haider, H. and Perry, J. "The evaluation of TKR designs using a simulated walking cycle." Transactions of the *4th Congress of EFFORT*, Brussels, 1999.
51. DesJardins, J.D., Walker, P.S, Haider, H. and Perry, J. "The in-vitro measurement of walking cycle kinematics for multiple TKR Designs." Transactions of the *46th Annual meeting, Orthopaedics Research Society*, March 12-15, 2000, Orlando, Florida.
52. Haider, H., Walker, P.S., Bell, C.J. and Blunn, G.W. "On the 'real' input of prescribed force-control conditions in TKR simulation and wear testing", Transactions of the Sixth World Biomaterials Congress, Hawaii, May 2000.
53. Bell, C.J., Haider, H., Walker, P.S., and Blunn, G.W. "Wear of Fixed versus Mobile Bearing Knees Under Normal and 'Enhanced' Walking Cycles", Transactions of the Sixth World Biomaterials Congress, Hawaii, May 2000.
54. Haider, H, Walker PS, Blunn GW and Bell CJ. "The sensitivity of total knee replacement kinematics to misaligned installation". *Transactions of the Orthopedics Research Society*, 47th Annual Meeting, Feb. 2001.
55. Ahir,SP, Blunn,G, Harrison, M, and Haider, H. and Walker, P., "Pre-clinical testing of tibial tray designs for their fatigue performance." Paper 154, Proceedings of the Combined Orthopaedic Research Societies Meeting, June, 2001, Rhodes, Greece.
56. Ahir,SP, Walker, P, Rayner, K, Haider, H and Blunn,G., "Is the ISO test for knees clinically relevant?" Paper 155, Proceedings of the Combined Orthopaedic Research Societies Meeting, June, 2001, Rhodes, Greece.
57. Walker, P.S., McPherson, A. and Haider, H., "Rationale for a New Compartmental Knee Design for Minimally-Invasive Surgery", Proceedings of the 5th Annual Conference on Computer Aided Orthopedic Surgery, Pittsburgh, July 2001.
58. Haider, H. and Walker P.S., "Matching Spring Stiffnesses to Soft Tissue Restraint in Knee Simulator Testing of Total Knee Replacement Under Force Control", Proceedings of the International Society for Technology in Arthroplasty (ISTA), September 2001, Hawaii.
59. Haider, H. and Walker, P.S., "An In-Vitro Study to Test if Different TKR's Designed for the Same Indications Have the Same Kinematics", Paper No. 238, Proceedings of the International Society for Technology in Arthroplasty (ISTA), September 2001, Hawaii.
60. Haider, H, Alberts, L.R., Laurent, M.P., Johnson, T.S., Yao, J., Gilbertson, L.N., Walker, P.S., Neff, J.R., Garvin, K.L., "Comparison between force-controlled and displacement-controlled in-vitro wear testing on a widely used TKR implant", Transactions of the Orthopedics Research Society, 48th Annual Meeting, Feb. 2002, Dallas, Texas.

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62. Tarkin, J. Bridgeman, H. Haider, K. Garvin and M. Jordan, "Long Term Follow-up for Cementless LCS Mobile Bearing Knees", Proceedings of the American Academy of Orthopaedic Surgeons, AAOS, 69th Annual Meeting, Feb. 2002, Dallas, Texas.
63. Haider, H. and Walker, P.S. "Analysis and recommendations for the optimum spring configurations for soft tissue restraint in force-control knee simulator testing", Transactions of the Orthopedics Research Society, 48th Annual Meeting, Feb. 2002, Dallas, Texas.
64. Walker, P.S. and Haider, H., "The effect of patient and surgical variables on kinematics of fixed bearing and mobile bearing knees in a force-input knee simulator", Transactions of the 27<sup>th</sup> Annual Meeting of the Japan Knee Society, Feb. 2002, Japan.
65. P.J. Buscemi, R. Alberts, J. Felt, B. Horstmann and Haider, H., "Mechanical Test System for a Knee Prosthesis", Proceedings of the 28th Annual Meeting, Society for Biomaterials, Tampa, Florida, 2002.
66. Haider, H, Alberts, L.R., Laurent, M.P., Johnson, T.S., Yao, J., Gilbertson, L.N., Walker, P.S., Neff, J.R., Garvin, K.L., "Comparison between force-controlled and displacement-controlled in-vitro wear testing on a widely used TKR implant", Paper 295, Proceedings of the 28th Annual Meeting, Society for Biomaterials, Tampa, Florida, 2002.
67. Haider, H., Walker, P.S., Werner, F, and Garvin, K.L., "The importance of provision of degrees of freedom when measuring the constraint of total knees", Transactions of the Orthopedics Research Society, 49th Annual Meeting, Feb. 2003, New Orleans, LA.
68. Haider, H., Farritor, S., Platt, S.R., and Garvin, K.L., "The feasibility of using piezoelectric ceramics to generate electrical power in total joint replacement implants", Transactions of the Orthopedics Research Society, 49th Annual Meeting, Feb. 2003, New Orleans, LA.
69. Haider, H., Walker, P.S. and Garvin, K.L., "Is the Selection of Which CR Total Knee Replacement Design Critical for Kinematics and Sensitivity to Misalignment?", Scientific Exhibit No. SE300, Proceedings of the American Academy of Orthopaedic Surgeons (AAOS), 70<sup>th</sup> Annual Meeting, New Orleans, 2003.
70. Haider, H, Walker, PS, "Constraint Characteristics of Conventional and Innovative Total Knee Replacements for Achieving High Ranges of Flexion", Podium paper 1410, Proceedings of the International Society for Technology in Arthroplasty (ISTA), San Francisco, CA, September 2003.
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156. Haider, H., Invited Lecture, "Biomechanische Zusammenhänge bei Hüftimplantaten (Biomechanical considerations of Total Hip Replacement)", Interdisziplinäres symposium, Das Hüftimpingement Ursache, Diagnose und Therapie (Interdisciplinary Symposium of causes, diagnoses and therapies of Hip Impingement), Orthopädie und Sportmedizin Linz / Rhein, Königswinter, Germany, 9 May 2009.
157. Haider, H., Invited guest speaker, "Topical engineering considerations of modern Total Hip Replacement systems", Symposium on Cobalt-based Alloys for Biomedical Applications, organized by the Iwate Industry Promotion Center and MEXT (Ministry of Education, Culture, Sports, Science and Technology) of Japan, 4 Sep. 2009, Marioka, Japan.
158. Haider, H., "Hard-on-hard bearing couples for Total Hip Replacement systems", Invited Lecture given at Japanese Medical Materials, Osaka, Japan. 11 Sept. 2009.
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2. "Technology and touch: A joint effort. How engineering, robotic surgery and computers are assisting orthopaedic surgeons in the operating room.", Hani Haider, Mini-Medical School video lecture, UNMC Video Library and published on the UNMC Web-site. Spring 2001.
3. USMDO.org (United States MD Overseas) – Web-based UNMC Expert Medical Second Opinion software. University of Nebraska Medical Center/The Nebraska Medical Center's office of International Healthcare Services (IHS).

**Examples of unsolicited media reports about my work**

1. British Broadcasting Corporation (BBC) International Science Program, showed a ¼ of a whole program about the prototype Knee Testing Simulators I produced in Stanmore / England, 1999.
2. Orthopedics Today, the International popular magazine published in its June 2005 issue a feature article titled "Freehand cutting in TKR can slash cutting time", on the study presented by Dr. Hani Haider, Mr. Andres Barrera, Dr. Todd Sekundiak and Dr. Kevin Garvin at the American Academy of Orthopaedic Surgeons in that year.
3. UNMC Discover Magazine published a feature article titled "Leading the way in joint replacement surgery", by Mr. Tom O'Connor, highlighting the arthroplasty outcomes and minimally invasive research of Dr. Kevin Garvin and Dr. Todd Sekundiak. The article centrally featured the novel Computer Navigated Freehand Bone Cutting system for knee replacement developed by Dr. Hani Haider and Mr. Andres Barrera.
4. Omaha World Herald, "Software to give surgeons a leg up", Article written by Emily Gersema, Sunday July 4, 2004, Iowa; Midlands; Nebraska; Sunrise Edition, Featured how scientists in Omaha hope to improve the precision of arthroplasty surgery with a new computer system that would help doctors plan and even simulate a joint-replacement operation long before they go into the operating room.
5. Also featured on two separate occasions/programs on local educational radio in Omaha, and once on local public TV. The Mini Medical School lecture on computer aided surgery mentioned above was broadcast on local educational TV; with tens of repeated showings so far.