

Curriculum Vitae

Goeran Fiedler

May 2016

Office Address:

University of Pittsburgh
Department of Rehabilitation Science and Technology
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Education

09/2012 – 08/2013	Post-doctoral training, Rehabilitation Medicine University of Washington Seattle, WA
06/2008 to 08/2012	Ph.D., Health Sciences University of Wisconsin – Milwaukee Milwaukee, WI Dissertation: Effects of Physical Exertion and Alignment Alterations on Trans-Tibial Amputee Gait, and Concurrent Validity of Prosthesis-Integrated Measurement of Gait Kinetics
04/2004 to 03/2008	Diploma Engineer, Clinical Engineering/Biomechanics University of Applied Sciences Giessen, Germany
10/2002 to 03/2004	Physics, Mathematics (no degree) University Georgia Augusta Gottingen, Germany
01/1998 to 10/1998	Master of Crafts, Prosthetics & Orthotics Chamber of Crafts Lower Bavaria/Upper Palatinate Regensburg, Germany
09/1990 to 01/1994	Bachelors of Crafts, Prosthetics & Orthotics Chamber of Crafts Thuringia Gera, Germany

Positions Held

01/2014 – present	Assistant Professor Research and teaching in prosthetics & orthotics master's program Department of Rehabilitation Science and Technology University of Pittsburgh, Pittsburgh, PA 15206
09/2012 – 08/2012	Post-doctoral Fellow

Lower limb prosthetics research
 Department of Rehabilitation Medicine
 University of Washington, Seattle, WA 98195

11/2010 – 08/2012 Project Assistant

Motion Analysis, Prosthetic Gait Assessment
 Rehabilitation Research Design and Disability Center (R₂D₂)
 Department of Occupational Science and Technology
 University of Wisconsin – Milwaukee, Milwaukee, WI 53211

06/2008-08/2010 Research Assistant

In-vivo imaging of residual limb/ prosthetic socket interaction
 Mobility Challenged Veterans (MOVE) Center
 Department of Human Movement Sciences
 University of Wisconsin – Milwaukee, Milwaukee, WI 53211

Other Relevant Positions Held

05/2011 - present Research & Development Engineer, consulting

Product Development
 GuentherBionics
 D-39317 Parey, Germany

03/1999-09/2002 Certified Prosthetist/Orthotist

Customer Training, Patient Fitting
 Otto Bock Health Care
 D-37115 Duderstadt, Germany

05/1995-02/1999 Prosthetist/Orthotist

Patient Fitting
 OTE Prosthetics & Orthotics
 D-07549 Gera, Germany

09/1990-04/1995 Prosthetist/Orthotist

Patient Fitting
 Duesedau Prosthetics & Orthotics
 D-07545 Gera, Germany

Fellowships and Awards

2016 University of Pittsburgh John G. Bowman Faculty Grant

2016 School of Health and Rehabilitation Sciences Bruce Baker Faculty Travel Grant

2015 University of Pittsburgh Innovation Institute, 1st Gear startup fund

2014 American Orthotic & Prosthetic Association, Center for Orthotic and Prosthetic Learning and Outcomes/Evidence-Based Practice, Pilot research grant

2014 Best Mentor Award, University of Pittsburgh, Rehabilitation Science and Technology Research Experience for Undergrads Internship program

2012 Selected for NIDRR Advanced Rehabilitation Research Training Fellowship at University of Washington, Seattle

2012 Force and Motion Foundation, Travel Grant

2011 UWM College of Health Sciences Student Research Grant

2011 UWM Chancellor's Award

2006 Fulbright Travel Grant

2006 Selected for Hesse-Wisconsin Exchange Program

Research Support

Current

Advanced Sensor Integration for Prosthetic Socketing Monitoring

Source of Support: SBIR DHP13-017 (subaward)

Total Award Amount: \$49,458

Total Award Period Covered: 2015/08/01-2017/07/31

Location of Project: State College, PA, Pittsburgh, PA

Past

Step-by-step variations in Amputee Gait

Source of Support: American Orthotic & Prosthetic Association, Center for Orthotic and Prosthetic Learning and Outcomes/Evidence-Based Practice

Total Award Amount: \$14,950

Total Award Period Covered: 2014/09/01-2015/11/30

Location of Project: Pittsburgh, PA

Pending

Evaluation of gait cycle symmetry to investigate accommodation to limb prostheses

Source of Support: University of Pittsburgh Office of Research, Health Sciences (OORHS) Competitive Medical Research Fund (CMRF)

Total Award Amount: \$24,990

Total Award Period Covered: 07/2016/-06/2017

Location of Project: Pittsburgh, PA

Professional Licenses and Society Memberships

2005- present: Member: VDI (Society of German Engineers)

2009- present: Member: AAOP (American Academy of Orthotists and Prosthetists)

2005- present: Member: TOB (Technical Orthopedics and Biomechanics)

2012- present: Member: GCMAS (Gait and Clinical Movement Analysis Society)

1998: Certified as Prosthetist & Orthotist (Master of Crafts Certificate) by Chamber of Crafts Lower Bavaria/Upper Palatinate

Reviewer for: Journal of Rehabilitation Research and Development, Journal of Clinical Biomechanics, Journal of Assistive Technology, Transactions on Neural Systems & Rehabilitation Engineering, Archives of Physical Medicine and Rehabilitation, PLOS-One, Medical Engineering & Physics, Journal of Prosthetics & Orthotics, Journal of Rehabilitation and Assistive Technologies Engineering, Department of Defense Peer Reviewed Orthopaedic Research Program (PRORP), International Society of Prosthetics & Orthotics (ISPO) World Congress Scientific Program

Teaching Responsibilities

2016 Duquesne University Pittsburgh, OCCT 550: Environmental Adaptations & Rehabilitation Technology (EART), Guest Lecture (7% responsibility)

2016 University of Pittsburgh, HRS 2926: Scholarly Paper, Co-teaching (50% responsibility)

2016 University of Pittsburgh, HRS 2727: Capstone Project, Co-teaching (50% responsibility)

2015 University of Pittsburgh, HRS2885: Trans-Femoral Prosthetics, Co-teaching (95% responsibility)

2015-16 University of Pittsburgh, HRS 2775: Introduction to Evidence Based Practice (100% responsibility)

2015 University of Pittsburgh, HRS 2926: Scholarly Paper, Co-teaching (25% responsibility)

2014-15 University of Pittsburgh, REHSCI 1225 Introduction to Rehabilitation Sciences, Guest lecture (7% responsibility)

2014-15 University of Pittsburgh, HRS 2774: Rehabilitation Biomechanics, Guest lecture (7% responsibility)

2014-15 University of Pittsburgh, HRS 1701: Introduction to Prosthetics & Orthotics, Main instructor (100% responsibility)

2014-15 University of Pittsburgh, HRS 2772: Pathology in Orthotics & Prosthetics, Main instructor (100% responsibility)

2014 University of Pittsburgh, HRS 2778: Research Seminar, Co-teaching (25% responsibility)

2014 University of Pittsburgh, HRS 2775: Introduction to Evidence Based Practice, Co-teaching (25% responsibility)

2014 University of Pittsburgh, HRS 2926: Scholarly Paper, Co-teaching (25% responsibility)

- 2013 University of Washington, RHB PO 581: Outcome Measures for the Prosthetics and Orthotics Clinic, Guest lecture/teaching assistance (10% responsibility)
- 2012 University of Washington, RHB PO 582: Critical Evaluation of the Prosthetics and Orthotics Literature, Guest lecture/teaching assistance (10% responsibility)
- 2012 University of Wisconsin-Milwaukee, OccThpy 308: Musculoskeletal Pathology and Occupational Function, Guest lectures (15% responsibility)
- 2011 University of Wisconsin-Milwaukee, HMS 643 Integumentary System, Guest lecture (7% responsibility)

Mentoring

PhD Student:

Krista Kutina: “Effectiveness of a Real Time Mobile Feedback System for Gait Retraining in the Amputee Population” (2015-ongoing)

Master Students:

(2014)

Tim Nolan, Lauren Casada: “ Addressing Common Prosthetic Issues in the Below Knee Amputee with Vacuum Suspension”

Joseph Fellows, Michelle Intintoli, Nicholas Marro, Devin Meunier, Nathan Yasika: “Effect of recent advances in surgical procedures and prosthetic technology improving proprioception and prosthetic control”

(2014-5)

Mark Bucci, Mariah Freeze, Sara Lustusky, Leah Wolfe, Ali Yorke: “Animal O&P, A White Paper”

(2015-ongoing)

Alex Ashoff, Corin Shirley: “Effect of shoes on mechanical properties of prosthetic feet utilized in tropical countries”

Christopher Cunningham: “Comparison of prosthetic feet for use on boats”

Adam Maurer: “Monitoring Compliance with exercise programs targeting atrophy and reduced strength in the residual limb of lower extremity amputees”

John Kesselring: “Additive Manufacturing technology in prosthetics: Effects on quality, time, and cost.”

Ashley Muller: “The control of infectious disease in prosthetics and orthotics”

Rachel Beaudette: “Sample sizes in prosthetics research: A statistical review on validity”

(2016-ongoing)

Cody Reimers: “Interaction effect of amputation level and exercise on cardiovascular fitness”

Julie Burke: “Comparison of 3D-printed and conventionally produced upper limb prosthesis”

Andrew Biaesch: “Orthotics manufacturing methods applied to baseball cap reinforcements for concussion protection”

Angela DeCandia: “Efficacy of articulated stubbies for bilateral leg prostheses on uneven terrain”

Sarah Brohaugh: “Common (Mis)conceptions about Prosthetics and Orthotics in the general public”

Jake Davis: “Durability of low-cost 3D-printed feet”

Mitchell Himmel: “Effect of prosthetic feet on jumping performance”

Emily Heskett: “Correlation between physical activity and residual limb pain in people with lower limb loss”

Mark Boardley: “Effect of different foot orthotics on bicycling efficiency”

Kori Campbell: “Differences in patient satisfaction without and with 3D printed upper limb prostheses”

Emily Bell: “Effect of Functional Electrical Stimulation on Balance in Lower Limb Amputees”

Tyler Hartman: “Application of Cross-Education Theory in Orthotics”

Stephen Zetts: “Viability of manufacturing orthosis joints from scrap materials”

Joshua Tanor: “Effect of Practitioner Education Level on the Fit of Prosthesis Sockets”

Bobby Dobson: “Effect of Hydraulic Prosthesis Feet on Slope Walking”

Brooke James: “Emotional effects of wearing traditional and non-traditional prosthesis covers”

Julie Lajoie: “Integration of Physical Therapy services and Prosthetics & Orthotics”

Mike Ball: “Feasibility of manufacturing customized foot orthotics on hobby grade 3D printers”

Cameron Willman: “Outcome comparison of rigid and soft post-operative dressings for limb amputation residuals”

Undergraduate Students:

Connor Malchow: “Effect of observation on gait in lower limb amputees” (2014)

Alexandra Delazio: “Measuring alignment angles of prosthesis adapters via proximity sensors” (2015)

Shea McMurtry: “Comparing limb forces during soccer play on different surfaces” (2015)

Anna Marie Clark: “Effectiveness of Blinding in prosthetics & orthotics research protocols” (2016)

High school Students:

Anna Marie Clark: “Comparing different strategies for operating drum set foot pedals with lower limb prostheses” (2015)

Houda Oslouim: “Rating domestic P&O education programs” (2015)

Publications

- [1] **Fiedler, G.** and Zhang, X. (2016). "Quantifying accommodation to prosthesis interventions in persons with lower limb loss", *Gait and Posture*, *under review*
- [2] Delazio, A.M. and **Fiedler, G.** (2016). "Development of a digital measurement system to gauge pyramid adaptors' bi-planar alignment in lower limb prostheses", *Journal of Rehabilitation and Assistive Technologies Engineering*, *under review*
- [3] McMurtry, S.F. and **Fiedler, G.** (2016). "Mobile Measurement of Lower Limb Segment Forces during Football Play on different Playing Surfaces", *Sports Biomechanics*, *under review*
- [4] **Fiedler, G.** and Johnson M.S. (2016). "Correlation of lower limb prosthesis alignment quality and step-by-step variance of gait", *Journal of Prosthetics and Orthotics*, *in press*
- [5] **Fiedler, G.**, Slavens, B., O'Connor, K.M., Smith, R.O., Hafner, B.J. (2016). "Effects of physical exertion on trans-tibial prosthesis users' ability to accommodate alignment perturbations." *Prosthetics and Orthotics International*, 40/1, pp 75-82.
- [6] Malchow, C., **Fiedler, G.** (2015). "Effect of Observation on Lower Limb Prosthesis Gait Biomechanics - Preliminary Results", *Prosthetics and Orthotics International*, September 30, DOI: 10.1177/0309364615605374
- [7] **Fiedler, G.** (2015). "Vergleich der Versorgungsergebnisse mit verschiedenen trans-femorale Schafthkonzepten [Outcome comparison of different trans-femoral socket designs]", *Orthopädie-Technik*, 04/15, pp 42-45
- [8] **Fiedler, G.**, Akins, J., Cooper, R., Munoz, S., and Cooper, R. A. (2014). "Rehabilitation of People with Lower-Limb Amputations." *Current Physical Medicine and Rehabilitation Reports* 2, pp 1-10.
- [9] **Fiedler, G.**, Slavens, B., Smith, R.O., Briggs, D., and Hafner, B.J. (2014). "Criterion and Construct Validity of Prosthesis-Integrated Measurement of Joint Moment Data in Persons with trans-tibial Amputation." *Journal of Applied Biomechanics*, 30/3, pp 431-438.
- [10] **Fiedler, G.** (2014). "Möglichkeiten und Limitationen des Einsatzes von prothesenintegrierter Ganganalysetechnologie in der transtibialen Prothetik, Eine Auswahl erster Studienergebnisse. [Prospects and limitations of prosthesis-integrated gait analysis technology in trans-tibial prosthetics – results of selected early studies]", *Orthopädie-Technik*, 12/14, pp 18-23.
- [11] **Fiedler, G.**, Slavens, B., Hafner, B.J., Briggs, D., and Smith, R.O. (2013). "Leg Laterality Differences in Persons with Bilateral Transtibial Amputation: A Pilot Study Using Prosthesis-Integrated Load Cells." *Journal of Prosthetics & Orthotics*, 25/4, pp 168-176.
- [12] **Fiedler, G.** (2013). "Mobile Kinetik-Sensoren in der Orthopädiertechnik, Evaluierung von Amputationsversorgungen der unteren Extremität mit prothesenintegrierter Ganganalyse. [Mobile kinetics sensors in Prosthetics & Orthotics, Assessment of lower limb prostheses by means of prosthesis integrated gait analysis]" *MT-Medizintechnik*, 3/13, pp 102-106.
- [13] Papaioannou, G., Tsiokos, D., **Fiedler, G.**, Mitrogiannis, C., Avdeev, I., Wood J., and McKinney R. (2011). "Dynamic radiography imaging as a tool in the design and validation of a novel intelligent amputee socket". *Computational Vision and Medical Image Processing: Recent Trends, Computational Methods in Applied Sciences*, 19, pp. 91-112.

- [14] **Fiedler, G.** and Günther, M. (2011). "Der Milwaukee-Schaft - wissenschaftliche Ergebnisse als Grundlage für ein verbessertes transfemorales Schaftdesign. [The Milwaukee Socket - an improved trans-femoral socket design based on scientific findings]", *Orthopädie-Technik*, 2/11, pp. 93-95.
- [15] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Assessment of amputee socket stump-residual bone kinematics during strenuous activities using Dynamic Roentgen Stereogrammetric Analysis". *Journal of Biomechanics*, 22; 43(5), pp. 871-878.
- [16] Papaioannou, G., Nianios, G., Mitrogiannis, C., and **Fiedler, G.** (2010). "Assessment of internal and external prosthesis kinematics during strenuous activities using Dynamic Roentgen Stereophotogrammetric Analysis". *Journal of Prosthetics and Orthotics*, 22 (2), pp. 91-105.
- [17] Günther, M. and **Fiedler, G.** (2010). "Schnittstelle Mensch-Prothese: Ansätze zur Schaftoptimierung [Humanprosthesis interface: approaches for socket optimization]", *Orthopädie-Technik*, 7/10, pp. 524-528.
- [18] Papaioannou, G., **Fiedler, G.**, Mitrogiannis, C., and Nianios, G. (2010). "Amputee skin deformation maps using Dynamic Roentgen Stereogrammetric imaging". *Computational Vision and Medical Image Processing*, ISBN: 978-0-415-57041-1. CRC Press: pp. 236-247.
- [19] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2009). "Tracking high speed arthrokinematics using a new and high resolution Biplane Dynamic Roentgen Stereogrammetric method". *International Journal of Imaging*, 2 (Number A09), pp. 66-85.
- [20] Papaioannou, G., Mitrogiannis, C., **Fiedler, G.**, Hostens, I., and Spaepen, A. (2009). "Comparison of several seating solutions designed for prolonged sitting and car driving with transportation-oriented wheelchairs". *Brazilian Journal of Biomotricity*, 3 (2), pp. 194-207.

Conference Presentations

- [1] Muller, A. and **Fiedler, G.** (2016). "Survey on Infectious Disease in Orthotics and Prosthetics: Common Beliefs and Attitudes Among Practitioners", American Orthotic and Prosthetic Association (AOPA) National Assembly, Boston, MA, Sep 8-11
- [2] **Fiedler, G.** and Zhang, X. (2016). "How Step Symmetry changes when Patients become accustomed to Lower Limb Prosthetic Devices", American Orthotic and Prosthetic Association (AOPA) National Assembly, Boston, MA, Sep 8-11
- [3] Günther, M., **Fiedler, G.** (2016). "Mobilitätsgrad von Oberschenkelprothesenträgern vor und nach der Versorgung mit dem Milwaukee Schaft [Mobility rating of trans-femoral prosthesis users before and after fitting with the Milwaukee Socket]", OT-World Orthopädie + Reha-Technik 2014, International Trade Show and World Congress, Leipzig, Germany, May 3-6
- [4] Delazio, A.M., **Fiedler, G.** (2016). "An improved Method of Quantifying Alignment in Lower Limb Prostheses: Design Criteria and First Results", University of Pittsburgh Bioengineering Day, Pittsburgh, PA, April 21
- [5] McMurtry, S., **Fiedler, G.** (2016). "A new method of directly comparing internal lower limb forces sustained during soccer play on natural grass and artificial turf", International Science and Football Association (ISFAFA) Conference, Doha, Qatar, March 24-25

- [6] Delazio, A.M., **Fiedler, G.** (2016). “Digitally Measuring Bi-planar Alignment Angles of Pyramid Adaptors in Lower Limb Prosthetics”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [7] Clark, A.M., **Fiedler, G.** (2016). “Comparing the Difficulty of Maintaining Rhythm on Bass Drum and Hi-Hat Pedals Using Prosthetics and Drum Set Adjustments”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [8] Kesselring, J.A., **Fiedler, G.** (2016). “Prosthetist’s Assessment of Additive Manufacturing as an Alternative to conventional manufacturing techniques in P&O”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [9] Johnson, M., Petersen, S., **Fiedler, G.** (2016). “An Analysis of Current Prosthetic and Orthotic Literature Authorship”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [10] **Fiedler, G.**, Zhang, X. (2016). “Assessing step-by-step variability of ground reaction forces as a measure of accommodation to prosthetic interventions”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [11] Cunningham, C., **Fiedler, G.** (2016). “Effect of prosthetic feet on boats”, 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- [12] **Fiedler, G.**, Ortiz-Weissberg, D. T., Peterson, S. (2015). “Suitability of step-by-step variability as an outcome variable for lower limb prosthesis alignment”, presented at American Orthotic and Prosthetic Association (AOPA) National Assembly, San Antonio, TX, October 7-10
- [13] Freeze, M. D., Ortiz-Weissberg, D. T., Munoz, S., **Fiedler, G.** (2015). “Step variability of prosthetic gait on different surfaces – preliminary results”, presented at the International Society of Prosthetics and Orthotics (ISPO) World Congress 2015, Lyon, France, June 22-25
- [14] Malchow, C., **Fiedler, G.** (2015). “Reactivity Effect of Observation in Prosthesis Gait Assessment”, presented at the 41st Annual Meeting and Scientific Symposium of the American Academy of Orthotics and Prosthetics (AAOP), New Orleans, LA, February 18-21.
- [15] Ortiz-Weissberg, D. T., Freeze, M. D., **Fiedler, G.** (2014). “Physiologic range of step-by-step variations in lower limb prosthesis forces during walking”, presented at Science 2014 – Sustain it! 14th Annual Symposium, Pittsburgh, PA, October 1-3.
- [16] **Fiedler, G.** (2014). “Amputee step variance within and between conditions of different exertion levels and alignment perturbations in a single-subject study design”, presented at OTWorld Orthopädie + Reha-Technik 2014, International Trade Show and World Congress, Leipzig, Germany, May 13 -16.
- [17] Redfield, M., **Fiedler, G.**, Hafner, B.J., and Sanders, J. (2013). “Validating the Use of a Kinetic Sensor for Gait Monitoring”, presented at the Annual Conference of the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) 2013 Bellevue, WA, June 22-24.
- [18] **Fiedler, G.** (2013). “Prosthesis-integrated Load Cells as Alternatives to Conventional Gait Analysis Methods – Capabilities and Limitations”, presented at the International Society of

Prosthetics and Orthotics (ISPO) World Congress 2013, Symposium on load measurement for evidence based practice. Hyderabad, India, February 4-7. (invited presentation)

[19] **Fiedler, G.**, Slavens, B.A., Briggs, D.W., Fedel, F., and Smith, R.O. (2012). "Leg Laterality in Bilateral Trans-Tibial Amputees, A Case Study using Prosthesis-Integrated Sensors", presented at the Annual Conference of RESNA 2012. Baltimore, MA, June 27-July 2.

[20] **Fiedler, G.**, Slavens, B.A., and Smith, R.O. (2012). "Evaluation of an Integrated Sensor System for Assessment of Prosthesis Ankle Alignment", presented at the Annual Conference of the Gait and Clinical Movement Analysis Society 2012. Grand Rapids, MI, May 9-12.

[21] **Fiedler, G.**, Slavens, B.A., and Smith, R.O. (2012). "Gait stability measured by prosthesis-integrated sensors as an outcome measure in persons with prostheses for the lower extremity", presented at the 25th Annual Dean's Research Day 2012. Kalamazoo, MI, March 23-24.

[22] **Fiedler, G.**, Slavens, B.A., and Smith, R.O. (2012). "Influence of Handrail Use on Stair Walking Stability in Trans-Tibial Amputees", presented at the 1st Occupational Science Summit 2012. St. Louis, MO, March 11-13.

[23] **Fiedler, G.** and Slavens, B. (2011). "Integrated Sensor Systems for Assessment of Rehabilitation in Lower Extremity Amputees", presented at Festival of International Conferences on Caregiving, Disability, Aging and Technology - FICCDAT 2011, Toronto, Canada, June 5-8.

[24] Papaioannou, G., Wood, J. R., **Fiedler, G.**, Mitrogiannis, C., Nianios, G., Kanellos, T. G., and Tsiokos, D. (2011). "Cardiopulmonary and Biomechanics of Three Daily Activity Tasks - Comparison between Two Prosthetic Socket Designs," presented at the 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.

[25] Papaioannou, G., Wood, J. R., Mitrogiannis, C., **Fiedler, G.**, Nianios, G., Kanellos, T. G., and Tsiokos, D. (2011). "Amputee Stair Ascending and Descending: Direct Measurement of Prosthesis Kinetics," presented at the 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.

[26] Papaioannou, G., Wood, J. R., Mitrogiannis, C., Tsiokos, D., **Fiedler, G.**, and Nianios, G. (2011). "Transtibial Prosthetic Kinetics during Prolonged Strenuous Activities of Daily Living Measures by Internal Gait Analysis Instrumentation," presented at the 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.

[27] Wood, J. R., Papaioannou, G., **Fiedler, G.**, Mitrogiannis, C., Nianios, G., and McKinney, R. (2011). "Effect of Elevated Vacuum Sockets on Residual Limb-Socket Motion in Prolonged Strenuous Activities," presented at the 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.

[28] Guenther, M., & **Fiedler, G.** (2010). "The Milwaukee-Socket: scientific findings as the foundation of an improved general trans-femoral socket design concept," presented at the 13th ISPO World congress, Leipzig, Germany, May 10-15.

[29] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Towards a novel "SMARTsocket" design for lower extremity amputees". Proceedings of the Human Factors

& Medicine Symposium on «Use of Advanced Technologies and new Procedures in Medical Field Operations», Essen, Germany, April 19-21.

[30] Papaioannou, G., Kanellos, G.T., Pleros, N., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Flexible strain sensing surface based on fiber optic sensors for application in orthopedic biomechanics and rehabilitation". Proceedings of the Human Factor & Medicine Symposium on «Use of Advanced Technologies and new Procedures in Medical Field Operations», Essen, Germany, April 19-21.

[31] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Internal and external prosthesis kinematics assessment using Dynamic Radiography ". Proceedings of the 56th Annual Meeting of the Orthopaedic Research Society (ORS) New Orleans, LA, March 6-9.

[32] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Bilateral below knee amputee socket-stump kinematics using Biplane Dynamic Roentgen Stereophotogrammetric Analysis ". Proceedings of the 56th Annual Meeting of the ORS New Orleans, LA, March 6-9.

[33] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Quantitative assessment of dynamic radiography data for lower limb amputees". Proceedings of the 56th Annual Meeting of the ORS New Orleans, LA, March 6-9.

[34] Papaioannou, G., Kanellos, T.G., Pleros, N., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2010). "Validation of a new Optical Fiber Sensor for novel amputee socket designs". Proceedings of the 56th Annual Meeting of the ORS New Orleans, LA, March 6-9.

[35] Papaioannou, G., Mitrogiannis, C., Nianios, G., **Fiedler, G.**, and Wood, J. (2010). "Effects of assisted vacuum TT socket design on the relative motion at the stump/socket interface". Proceedings of the 56th Annual Meeting of the ORS New Orleans, LA, March 6-9.

[36] Papaioannou, G., Mitrogiannis, C., Nianios, G., **Fiedler, G.**, and Baradaki, V. (2010). "Validation of a novel Adaptive Smart Surface bed with Integrated Decubitus Prophylaxis Sensors". Proceedings of the 56th Annual Meeting of the ORS, New Orleans, LA, March 6-9.

[37] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.**, (2009). "A new method for assessing residual limb skin-tissue strain during above-knee amputee high-speed movement". Proceedings of the ORS, Las Vegas, NV, February 22-25.

[38] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2009). "A new Improved Tracking Technique for assessment of high Resolution Dynamic Radiography Skeletal kinematics". Proceedings of the ORS, Las Vegas, NV, February 22-25.

[39] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2009). "Assessing Residual Bone-StumpSkin-Socket interface kinematics of Above Knee Amputees with High Accuracy Biplane Dynamic Roentgen Stereogrammetric Analysis". Proceedings of the ORS, Las Vegas, NV, February 22-25.

[40] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2009). "Assessment of internal and external prosthesis kinematics during strenuous activities using high speed Dynamic Roentgen Stereogrammetric Analysis". Proceedings of the Radiological Society of North America (RSNA), Chicago, IL, Nov 29 - Dec 4.

- [41] Papaioannou, G., **Fiedler, G.**, Mitrogiannis, C., and Nianios, G. (2009). "Using high accuracy Biplane Dynamic Roentgen Stereogrammetric Analysis to assess interface proximity residual bone-stump-skin-socket kinematics of above knee amputees during strenuous activities ". Proceedings of the International Society of Biomechanics, XIIth International Symposium on Computer Simulation in Biomechanics, Cape Town, South Africa, July 5-9.
- [42] Papaioannou, G., Mitrogiannis, C., **Fiedler, G.**, and Nianios, G. (2009). "Assessment of Vacuum-assisted trans-tibial amputee socket dynamics". Proceedings of the 9th International Conference on Information Technology and Applications in Biomedicine, Larnaca, Cyprus, November 5-7.
- [43] Mitrogiannis, C., **Fiedler, G.**, Papadopoulos, C., Nianios, G., and Papaioannou, G. (2009). "Validation of 3D fluoroscopy image distortion correction and calibration algorithms". Proceedings of the 9th International Conference on Information Technology and Applications in Biomedicine, Larnaca, Cyprus, November 5-7.
- [44] **Fiedler, G.**, Papaioannou, G., Mitrogiannis, C., and Nianios, G. (2009). "Development of a new Bed System With Improved Decubitus Prophylaxis For Bed-Ridden Patients". Proceedings of the 9th International Conference on Information Technology and Applications in Biomedicine, Larnaca, Cyprus, November 5-7.
- [45] Papaioannou, G., Mitrogiannis, C., Nianios, G., & **Fiedler, G.** (2008). "An improved tracking technique for assessment of high resolution dynamic radiography kinematics". In Proceedings International conference in Computer Modeling in Engineering and Sciences (CMES), Honolulu, HI, June 8-11.
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- [47] Papaioannou, G., **Fiedler, G.**, Nianios, G., and Mitrogiannis, C. (2008). "Integration of a series of wound diagnosis, prevention and treatment devices into an expert system for skin wound management". Proceedings of the Fifth International Conference on Health Care Systems, Doubletree Milwaukee City Center, Milwaukee, WI, October 13-15.
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