

University of Pittsburgh

CURRICULUM VITAE

BIOGRAPHICAL

Name: Goeran Fiedler

Business Address: University of Pittsburgh
Department of Rehabilitation Science and
Technology
Suite 403, Bakery Square
Pittsburgh, PA 15206
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EDUCATION and TRAINING

UNDERGRADUATE

09/1990 - 01/1994	Chamber of Crafts Thuringia Gera, Germany	Bachelors of Crafts, 1994	Prosthetics & Orthotics
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GRADUATE

01/1998 - 10/1998	Chamber of Crafts Lower Bavaria/Upper Palatinate Regensburg, Germany	Master of Crafts, 1998	Prosthetics & Orthotics
04/2004 - 03/2008	University of Applied Sciences Giessen, Germany	Diploma Engineer, 2008	Clinical Engineering/ Biomechanics
06/2008 - 08/2012	University of Wisconsin – Milwaukee Milwaukee, WI	Ph.D., 2012	Health Sciences

POSTGRADUATE

09/2012 – 08/2013	University of Washington Seattle, WA	Post-doctoral research training	Rehabilitation Medicine (Drs. Deborah Kartin and Brian Hafner)
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APPOINTMENTS and POSITIONS

ACADEMIC

06/2008 - 08/2010	Mobility Challenged Veterans (MOVE) Center Department of Human Movement Sciences University of Wisconsin – Milwaukee, Milwaukee, WI	Research Assistant
11/2010 – 08/2012	Rehabilitation Research Design and Disability Center (R2D2) Department of Occupational Science and Technology University of Wisconsin – Milwaukee, Milwaukee, WI	Project Assistant
09/2012 – 08/2013	Department of Rehabilitation Medicine University of Washington, Seattle, WA	Post-doctoral Fellow
01/2014 – present	Department of Rehabilitation Science and Technology University of Pittsburgh, Pittsburgh, PA	Assistant Professor

NON-ACADEMIC

09/1990 - 04/1995	Duesedau Prosthetics & Orthotics Gera, Germany	Prosthetist/Orthotist (Apprentice through 01/1994)
05/1995 - 02/1999	OTE Prosthetics & Orthotics Gera, Germany	Prosthetist/Orthotist (Certified after 10/1998)
03/1999 - 09/2002	Otto Bock Health Care Duderstadt, Germany	Certified Prosthetist/ Orthotist
05/2011 - present	GuentherBionics Parey, Germany	Research/Development Engineer, consulting
06/2017 - present	APO Technologies Philadelphia, PA	Clinical Engineer, consulting

CERTIFICATION and LICENSURE

SPECIALTY CERTIFICATION: Prosthetist/Orthotist

Certifying Board: Chamber of Crafts Lower Bavaria/Upper Palatinate, Regensburg, Germany	1998
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MEMBERSHIP in PROFESSIONAL and SCIENTIFIC SOCIETIES

VDI (Society of German Engineers)	2005- present
TOB (Technical Orthopedics and Biomechanics)	2005- present
AAOP (American Academy of Orthotists and Prosthetists)	2009- present
GCMAS (Gait and Clinical Movement Analysis Society)	2012- present

HONORS

Fulbright Travel Grant	2006
UWM College of Health Sciences Student Research Grant	2011
UWM Chancellor's Award	2011
Selected for NIDRR Advanced Rehabilitation Research Training Fellowship at University of Washington, Seattle	2012
Force and Motion Foundation, Travel Grant	2012
Best Mentor Award, University of Pittsburgh, Rehabilitation Science and Technology Research Experience for Undergrads Internship program	2014, 2016
American Academy of Orthotists & Prosthetists Annual Meeting Thematic Poster Session Presenter Prize	2016
Pitt Innovation Challenge, First Prize Team Member	2017
Department of Rehabilitation Science and Technology, Teacher of the Year	2018
Pitt Innovator Award	2019
Pitt Innovation Challenge, Second Prize Team Member	2019
SAGE Elite Reviewer Award	2019
SHRS Dean's Distinguished Teaching Award	2020

PUBLICATIONS

(* - Publications as Lead/Senior author, # - Publications by mentored student)

1. ORIGINAL PEER REVIEWED ARTICLES

- [1] 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.
- [2] 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
- [3] 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.
- [4] 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". *JPO – Journal of Prosthetics and Orthotics*, 22 (2), pp. 91-105.

- *[5] 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.
- [6] 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.
- *[7] **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.
- [8] 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.
- *[9] **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." *JPO – Journal of Prosthetics & Orthotics*, 25/4, pp 168-176.
- *[10] **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.
- *[11] **Fiedler, G.** (2015). "Vergleich der Versorgungsergebnisse mit verschiedenen trans-femorale Schaftkonzepten [Outcome comparison of different trans-femoral socket designs]", *Orthopädie-Technik*, 04/15, pp 42-45
- *[12] **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.
- *[13] **Fiedler, G.** and Zhang, X. (2016). "Quantifying accommodation to prosthesis interventions in persons with lower limb loss", *Gait and Posture*, 50, pp 14-16
- *#[14] Malchow, C., **Fiedler, G.** (2016). "Effect of Observation on Lower Limb Prosthesis Gait Biomechanics - Preliminary Results", *Prosthetics and Orthotics International*, 40/6, pp 739-43
- *#[15] **Fiedler, G.** and Johnsen, M.S. (2017). "Correlation of lower limb prosthesis alignment quality and step-by-step variance of gait", *JPO – Journal of Prosthetics and Orthotics*, 29/1, pp 19-25
- *[16] **Fiedler, G.** and Kremer, U. (2017). "Self-efficacy in Prosthetics & Orthotics students who did and did not participate in short term study abroad programs – preliminary results", *ZEFQ - The Journal of Evidence and Quality in Health Care*, 121, pp 36–41
- *#[17] Beaudette, R. and **Fiedler, G.** (2018) "Appropriateness of Sample Sizes in published Research on Prosthetic Knee Componentry", *JPO – Journal of Prosthetics & Orthotics*, 30/2, pp 60-8
- *#[18] Muller, A. and **Fiedler, G.** (2018) "The Control of Infectious Diseases in Orthotics and Prosthetics", *JPO – Journal of Prosthetics & Orthotics*, 30/3, pp 124-9
- #[19] Zhang, X., **Fiedler, G.**, Li, Y., Liu, Z. (2018) "A support vector machine approach to detect prosthetic misalignment from trans-tibial amputee gait patterns", *Technology and Health Care*. 26/4, pp 715-21
- *#[20] Burke, J., **Fiedler, G.** (2018) "Clinicians' Access to Peer-Reviewed Prosthetics Research Articles", *Canadian Orthotics and Prosthetics Journal*, 1/1, No 3
- *#[21] **Fiedler, G.** and Kutina, K. (2019) "Feasibility of a mobile feedback system for gait retraining in people with lower limb loss – A technical Note", *Journal of Rehabilitation and Assistive Technologies Engineering*, Jan 14. <https://doi.org/10.1177/2055668318813682>

- *#[22] McMurtry, S.F. and **Fiedler, G.** (2019) "Mobile Measurement of Lower Limb Segment Forces on different Football Playing Surfaces", *Journal of Rehabilitation and Assistive Technologies Engineering*, May 13. <https://doi.org/10.1177/2055668319835701>
- #[23] Zhang, X., **Fiedler, G.**, Li, Y., Liu, Z. (2019), "Evaluation of Gait Variable Change over Time as Trans-tibial Amputees Adapt to a New Prosthesis Foot", *BioMed Research International*, May 20., Article ID 9252368, <https://doi.org/10.1155/2019/9252368>
- *#[24] Clark, A.M. and **Fiedler, G.** (2019) "Vision blinding of participants in limb prosthetic research is unnecessary", *Journal of Prosthetics and Orthotics*, August 6, doi: 10.1097/JPO.0000000000000273
- *[25] **Fiedler, G.**, Singh, A., Zhang, X. (2020) "Effect of temperature control liner materials on long term outcomes of prosthesis use, A Randomized Control Trial Protocol", *Trials*, 21/61 doi: 10.1186/s13063-019-3920-4
- [26] Gale, T., Yang, S., McGough, R., **Fiedler, G.**, Anderst, W. "Motion of the Residual Femur Within the Socket During Gait is Associated with Patient Reported Problems in Transfemoral Amputees", *Journal of Biomechanics*, *in press*
- *[27] Noble, C., **Fiedler, G.** "Preparing for the Worst or Hoping for the Best? The state of Fall Training in Prosthesis Users", *Journal of Prosthetics & Orthotics*, *in press*

2. OTHER PEER REVIEWED PUBLICATIONS

- *[1] **Fiedler, G.** (2013). "Mobile Kinetik-Sensoren in der Orthopädietechnik, 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.
- [2] **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.
- *[3] **Fiedler, G.** (2014). "Möglichkeiten und Limitationen des Einsatzes von prothesen-integrierter 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.

3. OTHER NON-PEER REVIEWED PUBLICATIONS

- *[1] **Fiedler, G.**, Savage, S., Schull, J., Mankoff, J. (2018) "The case for broad-range outcome assessment across upper limb device classes", *Canadian Orthotics and Prosthetics Journal*, 1/1, No 4
- *[2] **Fiedler, G.** (2020) "Editor's comments", *Journal of Prosthetics and Orthotics*, 32/2, p:77, doi 10.1097/JPO.0000000000000312

4. BOOKS, BOOK CHAPTERS AND MONOGRAPHS

- [1] Cooper, R., Chung, C.S., Coltellaro, J., LaCroix, C., Lane, A., Ling, A., Reinsfelder, A., Salatin, B., **Fiedler, G.** (2018) "The promise of the future : assistive technology, transportation, and emerging technologies" in Cooper, R.A., Pasquina, P.F., Etter, D.A. (Editors): *Promoting successful integration*, National Government Publication, ISBN 978-0-160-94475-8/9

5. PUBLISHED ABSTRACTS (in Scientific Journals)

- *#[1] Burke, J., **Fiedler, G.** (2018). "Online Access to Research Papers – Changes over Time" American Orthotic and Prosthetic Association (AOPA) Assembly, Vancouver, BC, Sep 26-29, Canadian Prosthetics & Orthotics Journal, 1/2
- *[2] Mankoff, J., Savage, S., Eckert, S., Ngo, C., **Fiedler, G.** (2018). "User experiences with traditional and 3D-printed Upper Extremity Prostheses, Development of a comprehensive Survey Instrument", AOPA Assembly, Vancouver, BC, Sep 26-29, Canadian Prosthetics & Orthotics Journal, 1/2
- *#[3] Seibert, A. C., Litchman, M., Lin, Y., Brienza, D., **Fiedler, G.** (2019). "Prosthesis User experience and Coping Strategies – A social Media Content Analysis", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9, Journal of Prosthetics and Orthotics, 31/2S: 43
- *[4] **Fiedler, G.**, Quinn, K. (2020). "Getting accustomed to a new prosthetic foot", 46th Annual AAOP Meeting and Scientific Symposium, Chicago, March 4-7, Journal of Prosthetics and Orthotics, 32/2S: 41

6. ABSTRACTS (not published in Scientific Journals)

- [1] Papaioannou, G., Bottum, M., and **Fiedler, G.** (2007). "Menisci Displacement under Joint Load", XXI Congress of the International Society of Biomechanics, Taipei, Taiwan, July 1-5.
- [2] Papaioannou, G., **Fiedler, G.**, Nianios, G., and Mitrogiannis, C. (2008). "Using a direct digital radiography CCD imaging sensor in place of image intensifiers in human joint imaging." Proceedings of the 54th Annual Orthopaedic Research Society (ORS) Meeting, Moscone W Convention Center San Francisco, CA, 2, pp. 145-156, March 2-5.
- *[3] **Fiedler, G.**, Papaioannou, G., Mitrogiannis, C., and Nianios, G. (2008). "Control of variable pneumatic pressure in an anti-decubitus seat cushion". Proceedings of the Fifth International Conference on Health Care Systems, Doubletree Milwaukee City Center, Milwaukee, WI, October 13-15.
- [4] Mitrogiannis, C., Papaioannou, G., **Fiedler, G.**, and Nianios, G. (2008). "A new tracking technique for assessment of above-knee amputee socket-stump kinematics from high speed-high resolution dynamic radiography data". Proceedings of the Fifth International Conference on Health Care Systems, Doubletree Milwaukee City Center, Milwaukee, WI, October 13-15.
- [5] 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.
- [6] Papaioannou, G., Mitrogiannis, C., Nianios, G., and **Fiedler, G.** (2008). "The use of Dynamic Biplane Roentgen Stereophotogrammetric Analysis (DRSA) as a new diagnostic paradigm in orthopedics". Proceedings of the Fifth International Conference on Health Care Systems, Milwaukee, WI, October 13-15.
- [7] Papaioannou, G., Mitrogiannis, C., Nianios, G., & **Fiedler, G.** (2008). "An improved tracking technique for assessment of high-resolution dynamic radiography kinematics". Proceedings of the International conference in Computer Modeling in Engineering and Sciences (CMES), Honolulu, HI, June 8-11.

- *[8] **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.
- [9] 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.
- [10] 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.
- [11] 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, XIth International Symposium on Computer Simulation in Biomechanics, Cape Town, South Africa, July 5-9.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] 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.
- [16] 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.
- [17] 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.
- [18] 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.
- [19] 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.
- [20] 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.
- [21] 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 ORS, New Orleans, LA, March 6-9.

- [22] 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.
- [23] 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.
- *[24] Guenther, M., & **Fiedler, G.** (2010). "The Milwaukee-Socket: scientific findings as the foundation of an improved general trans-femoral socket design concept," 13th International Society of Prosthetics and Orthotics (ISPO) World congress, Leipzig, Germany, May 10-15.
- [25] 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," 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," 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.
- [27] 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," 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.
- [28] 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," 37th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 16-19.
- *[29] **Fiedler, G.** and Slavens, B. (2011). "Integrated Sensor Systems for Assessment of Rehabilitation in Lower Extremity Amputees", Festival of International Conferences on Caregiving, Disability, Aging and Technology –(FICCDAT) 2011, Toronto, Canada, June 5-8.
- *[30] **Fiedler, G.**, Slavens, B.A., and Smith, R.O. (2012). "Influence of Handrail Use on Stair Walking Stability in Trans-Tibial Amputees", 1st Occupational Science Summit 2012. St. Louis, MO, March 11-13.
- *[31] **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", 25th Annual Dean's Research Day 2012. Kalamazoo, MI, March 23-24.
- *[32] **Fiedler, G.**, Slavens, B.A., and Smith, R.O. (2012). "Evaluation of an Integrated Sensor System for Assessment of Prosthesis Ankle Alignment", Annual Conference of the GCMAS 2012. Grand Rapids, MI, May 9-12.
- *[33] **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", Proceedings of the Annual Conference of the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) 2012. Baltimore, MA, June 27-July 2.
- #[34] Redfield, M., **Fiedler, G.**, Hafner, B.J., and Sanders, J. (2013). "Validating the Use of a Kinetic Sensor for Gait Monitoring", Proceedings of the Annual Conference of RESNA 2013 Bellevue, WA, June 22-24.
- *[35] **Fiedler, G.** (2014). "Amputee step variance within and between conditions of different exertion levels and alignment perturbations in a single-subject study design", OTWorld

Orthopädie + Reha-Technik 2014, International Trade Show and World Congress, Leipzig, Germany, May 13 -16.

- *#[36] Ortiz-Weissberg, D. T., Freeze, M. D., **Fiedler, G.** (2014). "Physiologic range of step-by-step variations in lower limb prosthesis forces during walking", Science 2014 – Sustain it! 14th Annual Symposium, Pittsburgh, PA, October 1-3.
- *#[37] Malchow, C., **Fiedler, G.** (2015). "Reactivity Effect of Observation in Prosthesis Gait Assessment", 41st Annual Meeting and Scientific Symposium of the AAOP, New Orleans, LA, February 18-21.
- *#[38] Freeze, M. D., Ortiz-Weissberg, D. T., Munoz, S., **Fiedler, G.** (2015). "Step variability of prosthetic gait on different surfaces – preliminary results", ISPO World Congress 2015, Lyon, France, June 22-25
- *[39] **Fiedler, G.**, Ortiz-Weissberg, D. T., Peterson, S. (2015). "Suitability of step-by-step variability as an outcome variable for lower limb prosthesis alignment", AOPA National Assembly, San Antonio, TX, October 7-10
- *#[40] Cunningham, C., **Fiedler, G.** (2016). "Effect of prosthetic feet on boats", 42nd Annual AAOP Meeting and Scientific Symposium, Orlando, FL, March 9-12
- *#[41] **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
- *[42] 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
- *#[43] 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
- *#[44] 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
- *#[45] 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
- *#[46] 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 (ISAF) Conference, Doha, Qatar, March 24-25
- *#[47] 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
- *[48] 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
- *#[49] **Fiedler, G.** and Zhang, X. (2016). "How Step Symmetry changes when Patients become accustomed to Lower Limb Prosthetic Devices", AOPA National Assembly, Boston, MA, Sep 8-11
- *#[50] Muller, A. and **Fiedler, G.** (2016). "Survey on Infectious Disease in Orthotics and Prosthetics: Common Beliefs and Attitudes Among Practitioners", AOPA National Assembly, Boston, MA, Sep 8-11
- [51] Hofmann, M., Burke, J., Pearlman, J., **Fiedler, G.**, Hess, A., Schull, J., Hudson, S., Mankoff, J. (2016). "Clinical and Maker Perspectives on the Design of Assistive Technology with Rapid

Prototyping Technologies”, Proceedings of the 18th International ACM SIGACCESS Conference on Computers and Accessibility, Reno, NV, Oct 24-26

- #[52] Delazio, A., **Fiedler, G.**, Akins, J. (2016), "Electronic alignment angle measurement in limb prosthetics - versatile device design", The Society of Women Engineers Annual Conference 2016, Philadelphia, PA, Oct. 27-29
- [53] Reißberg, M., Günther, M., Kauert, R., **Fiedler, G.** (2017). "Reliabilität und Validität des laborunabhängigen Ganganalysesystems bionicGait [Reliability and Validity of the laboratory-independent gait analysis system bionicGait]", 10. Jahrestagung der Deutschen Gesellschaft für Biomechanik (DGfB), Hannover, Germany, March 29-31
- *#[54] Shirley, C., Ashoff, A., **Fiedler, G.** (2017). "Effect of Shoes on the Mechanical Properties of Prosthetic Feet Utilized in Tropical Countries", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[55] Hartman, T., **Fiedler, G.** (2017). "Effect of a Unilateral Balance Training Programm on Bilateral Balance: A Cross-Education Effect", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[56] Clark, A.M. and **Fiedler, G.** (2017), "Effective Subject Blinding in P&O Research", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[57] Heskett, E., **Fiedler, G.** (2017). "Does increasing Physical Activity measured by Step Count Affect Intensity of Low Back, Residual Limb, and Phantom Pain in Trans-Tibial Amputees?", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[58] DeCandia, A., **Fiedler, G.** (2017). "A Comparative Analysis between Articulated and Conventional Stubby Prostheses", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[59] Kutina, K., **Fiedler, G.** (2017). "Developing a Gait Event Detection Framework for implementation into a Real Time Feedback System based on Data from a Prosthesis-Integrated Load Cell", 43rd Annual AAOP Meeting and Scientific Symposium, Chicago, IL, March 1-4
- *#[60] Zetts, S., **Fiedler, G.** (2017). "Investigating a Method of Sustainable Fabrication of Orthotic Joints", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[61] Ball, M., **Fiedler, G.** (2017) "Comparative Study of Remotely Fabricated and Practitioner Custom Molded Shoe Inserts", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[62] Kutina, K., Frownfelter, A., Wright, D., **Fiedler, G.** (2017) "The Use of an Integrated Load Cell as a Mobile Gait Analysis System to Detect Gait Events in People with Lower Limb Loss", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[63] Kutina, K., Frownfelter, A., **Fiedler, G.** (2017) "Developing a mobile feedback system for gait retraining in people with lower limb loss", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[64] Shirley, C., Ashoff, A., **Fiedler, G.** (2017). "The Importance of Shoe Wear on Prosthetic Feet in Tropical Environments", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[65] **Fiedler, G.** and Kremer, U. (2017). "Evaluating the benefits of study excursions abroad for Prosthetics & Orthotics master students", ISPO World Congress, Cape Town, South Africa, May 8-11
- *#[66] Heskett, E., **Fiedler, G.** (2017). "Viability of Prescribing Increases in Physical Activity to Lower Limb Amputees", AOPA 2nd World Congress and 100th Anniversary Celebration, Las Vegas, NV, Sep 6-9
- *#[67] Ferchaw, M., Peddada, P., Smith, M., Sondh, I., Torgalski, C., Weinstein, A., **Fiedler, G.** (2017). "Developing an Adjustable Prosthetic Foot", AOPA 2nd World Congress and 100th Anniversary Celebration, Las Vegas, NV, Sep 6-9

- *#[68] Kutina, K., Coleman, K., **Fiedler, G.** (2017). "Providing Mobile Visual Feedback to Lower Limb Prosthesis Users", AOPA 2nd World Congress and 100th Anniversary Celebration, Las Vegas, NV, Sep 6-9
- *#[69] Kutina, K., **Fiedler, G.** (2018). "Correlation between unilateral step timing variables and gait symmetry in users of lower limb prostheses", 44th Annual AAOP Meeting and Scientific Symposium, New Orleans, LA, Feb 14-17
- *#[70] Burke, J., **Fiedler, G.** (2018). "P&O Professionals' access to peer-reviewed research articles", 44th Annual AAOP Meeting and Scientific Symposium, New Orleans, LA, Feb 14-17
- *#[71] Valentine, L., Morris, C., **Fiedler, G.** (2018). "Utility of Virtual Reality Headsets to Mitigate Reactivity Effects in Lower Limb Prosthetic Gait Assessment" AOPA Assembly, Vancouver, BC, Sep 26-29
- *#[72] Ching, K., **Fiedler, G.** (2018). "An Analysis of Internal Consistency within OPUS in Upper Extremity Prosthesis Users", AOPA Assembly, Vancouver, BC, Sep 26-29, (**recipient of the Edwin and Kathryn Arbogast Award**)
- *#[73] Boyle, T., **Fiedler, G.** (2018). "Transtibial RevoFit Socket Accommodations for Residual Limb Volume Changes", AOPA Assembly, Vancouver, BC, Sep 26-29
- *#[74] Cooper, G., **Fiedler, G.** (2018). "Is Residual Limb Temperature A Decisive Factor In Determining Sleep Quality Among Amputees?", AOPA Assembly, Vancouver, BC, Sep 26-29
- *#[75] Zenger, P. J., **Fiedler, G.** (2018). "Self-Efficacy Related to Education Level in O&P", AOPA Assembly, Vancouver, BC, Sep 26-29, (**recipient of the Otto and Lucille Becker Award**)
- *#[76] McKillop, T., **Fiedler, G.** (2018). "Preference for Prosthetic Covers: Is it Influenced by Gender, Age or Amputation Level?", AOPA Assembly, Vancouver, BC, Sep 26-29
- *#[77] Osik, G., **Fiedler, G.** (2018). "Climate and Hyperhidrosis in Lower Extremity Amputees", AOPA Assembly, Vancouver, BC, Sep 26-29
- *#[78] Delazio, A., **Fiedler, G.** (2019). "Importance of Documentation Tools in a Related Health Care Field", 35th International Seating Symposium, Pittsburgh, PA, Mar 20-22
- *#[79] Zhang, X., **Fiedler, G.** (2019). "Assessment of Gait Variables on Multiple Measurements While Trans-tibial Prosthesis Users Adapt to a New Prosthesis Foot", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9
- *#[80] **Fiedler, G.**, Singh, A., Zigler, C. (2019). "Applicability of Double-Blinded Randomized Controlled Trials in Prosthetics & Orthotics Research", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9
- *#[81] Christian, S., **Fiedler, G.** (2019). "Effects of higher academic degrees on Practitioner Salaries in Prosthetics & Orthotics", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9
- *#[82] Leavitt, B., Kutina, K., **Fiedler, G.** (2019). "Correlations between Prosthesis Satisfaction and Sexual Satisfaction in People with Limb Loss", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9
- *#[83] Zhang, X., **Fiedler, G.** (2019). "Correlation of Measured Gait Variables and Perceived Rate of Accommodation to a New Prosthetic Foot – Preliminary Analysis", 45th Annual AAOP Meeting and Scientific Symposium, Orlando, FL, Mar 6-9
- *#[84] Seibert, A. C., Litchman, M., Lin, Y., Brienza, D., **Fiedler, G.** (2019). "Social Media as an Outlet for Prosthesis User experience – a comparison of two platforms", American Academy of Orthotists & Prosthetists, PA/MD/VA/DC AAOP Chapter, Spring Conference 2019, May 9-11
- *#[85] Perry, B., Quinn, K., **Fiedler, G.** (2019). "Combating Phantom Limb Pain and Volume Loss with Vibration Therapy", American Academy of Orthotists & Prosthetists, PA/MD/VA/DC AAOP Chapter, Spring Conference 2019, May 9-11

- *#[86] Delazio, A., **Fiedler, G.** (2019). "Development of a Digital Lower Limb Prosthesis Alignment Tool", American Academy of Orthotists & Prosthetists, PA/MD/VA/DC AAOP Chapter, Spring Conference 2019, May 9-11
- *#[87] Sabato, J., DeVillez, J., **Fiedler, G.** (2019), "Dart throwing by prosthesis users - unexpected advantages", Asia-Singapore Conference on Sports Science (ACSS 2019), Singapore, July 18-19
- * [88] **Fiedler, G.**, Singh, A., McKernan, G., Zhang, X. (2019). "Effect of Liner Material on Prosthesis User Activity – Preliminary Data", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[89] Hanssmann, N., Subke, J., **Fiedler, G.** (2019). "Self-reported ability of movement in users of lower limb prostheses", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[90] McGraw, E., **Fiedler, G.** (2019). "Comparing the comfort of Ankle Foot Orthosis Designs: Sleeve Cover vs. Traditional Cuff Strap", AOPA Assembly, San Diego, CA, Sep 25-28, (**recipient of the Otto and Lucille Becker Award**)
- *#[91] Weckler, B., **Fiedler, G.** (2019). "Effect of Knee Bracing on Golf Swing", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[92] Nunkovich, N., **Fiedler, G.** (2019). "Comparing Upper Extremity terminal devices for Basketball", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[93] Noble, C., **Fiedler, G.** (2019). "Is the Allied Health Field "Passing the Buck" Regarding Fall Training?", AOPA Assembly, San Diego, CA, Sep 25-28, (**recipient of the Edwin and Kathryn Arbogast Award**)
- *#[94] Kjellsen, D., **Fiedler, G.** (2019). "Cyclic Testing of Plastic AFO: Sleeve Cover vs. Traditional Cuff Strap", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[95] Weir, J., **Fiedler, G.** (2019). "Observed Statistical Power in Published Research Studies of Ankle Foot Orthoses", AOPA Assembly, San Diego, CA, Sep 25-28
- *#[96] Kutina, K., **Fiedler, G.** (2019). "Variation of Ground Reaction Force Measurements Across different Prosthesis-integrated Load Cells", ISPO World Congress 2019, Kobe, Japan, October 5-8
- * [97] Nelson, K., Nguyen, C., Ruiz, E., Crowley, J., **Fiedler, G.** (2019). "Nominal accuracy of a touchless prosthetic alignment sensor", ISPO World Congress 2019, Kobe, Japan, October 5-8
- # [98] Jameson, B., **Fiedler, G.**, Shrivastava, P., Srinivasa, P.R., Cooper, R. (2019). "Testing the Durability of 3D Printed Prosthetic Sockets", ISPO World Congress 2019, Kobe, Japan, October 5-8
- *#[99] Noble, C., **Fiedler, G.** (2020). "Is the Allied Health Field "Passing the Buck" Regarding Fall Training? – An in-depth analysis", Hanger Live – New Frontiers, Nashville, TN, Feb 3-7
- *#[100] Perry, B., Quinn, K., **Fiedler, G.** (2020). "A novel approach to combating phantom limb pain", 46th Annual AAOP Meeting and Scientific Symposium, Chicago, March 4-7
- # [101] Johnston, R., Sell, D., **Fiedler, G.**, Singh, A. (2020). "Effect Of Temperature Control Prosthesis Liners On Gait Speed And Activity Levels Of People With Lower Limb Loss". Virtual Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), June 17-20
- *#[102] Eddy, W., **Fiedler, G.** (2020). "Quality Standards in Custom Orthotics: Tracking Cause and Frequency of Failed Custom Orthoses by Warranty Cases", American Orthotic and Prosthetic Association (AOPA) Assembly, Sep 9-12, Online, (**recipient of the Otto and Lucille Becker Award**)
- *#[103] Weiss, L., Dicianno, B., **Fiedler, G.** (2020). "Using Xsens and Self-Report Data to Analyze Accommodation Times for Patients with Trans-tibial Prosthetics", 16th Annual Rehabilitation Institute Research Day on Wednesday, October 7. (**recipient of the Best Paper Award**)
- *#[104] Mitrik, N., Roy, Z., Delazio, A., Brienza, D., **Fiedler, G.** (2020). "Inertia-Based Prosthetic Tails: Balance Improvement, Equation Development, and Proof-of-Concept", Biomedical Engineering Society (BMES) 2020 Virtual Meeting, October 14-17

PROFESSIONAL ACTIVITIES

TEACHING

(Office of Measurement and Evaluation of Teaching (OMET) scores indicate “overall teaching effectiveness” as determined by student survey on a scale from 1 (ineffective) to 5 (excellent))

Graduate Student Teaching:

Dates	Role	Class	Number of students	Number of sessions/yr	OMET score
2011	Guest lecture	University of Wisconsin-Milwaukee, HMS 643 Integumentary System	~20	1	n/a
2012	Guest lectures	University of Wisconsin-Milwaukee, OccThpy 308: Musculoskeletal Pathology and Occupational Function	~20	2	n/a

Fellow Teaching:

Dates	Role	Class	Number of students	Number of sessions/yr	OMET score
2012	Guest lecture	University of Washington, RHB PO 582: Critical Evaluation of the Prosthetics and Orthotics Literature	10	1	n/a
2013	Guest lecture	University of Washington, RHB PO 581: Outcome Measures for the Prosthetics and Orthotics Clinic	10	1	n/a

Faculty Development Teaching:

Dates	Role	Class	Number of students	Number of sessions/yr	OMET score
2014	Co-teaching	University of Pittsburgh, HRS 2775: Intro to Evidence Based Practice	15	4	n/a
2014-2018	Guest lectures	University of Pittsburgh, HRS 2774: Rehabilitation Biomechanics	~25	1	n/a
2014-2018	Guest lectures	University of Pittsburgh, REHSCI 1225 Intro to Rehabilitation Sciences	~80	1	n/a
2014-2015	Co-teaching	University of Pittsburgh, HRS 2926: Scholarly Paper	15	1	n/a
2015	Main Instructor	University of Pittsburgh, HRS2885: Trans-Femoral Prosthetics	15	15	4.0
2016	Guest Lecture	Duquesne University, OCCT 550: Environmental Adaptations & Rehabilitation Technology	~15	1	n/a
2017	Co-teaching	University of Pittsburgh, HRS 2785: Lower Extremity Orthotics 1	20	3	n/a

2017	Co-teaching	University of Pittsburgh, HRS 2883: Trans-Tibial Prosthetics	20	4	n/a
2017-2020	Guest lecture	University of Pittsburgh, HRS 2868: Seminar in Sports Medicine	~10	1	n/a
2017-2019	Guest lecture	University of Pittsburgh, REHSCI 1018 Survey of the Health Professions	~30	1	n/a
2014 2015 2016 2017 2018 2019	Main instructor	University of Pittsburgh, HRS 2772: Pathology in Orthotics & Prosthetics	15 20 24 25 24 24	15	4.00 4.22 3.76 4.70 4.43 4.05
2014 2015 2016 2017 2018 2019	Main instructor	University of Pittsburgh, HRS 1701: Intro to Prosthetics & Orthotics	7 8 8 11 8 13	15	4.33 4.00 3.88 5.00 4.40 4.29
2015 2016 2017 2018 2019 2020	Main instructor	University of Pittsburgh, HRS 2775: Intro to Evidence Based Practice for Prosthetics & Orthotics	15 20 24 24 24 24	15	3.17 4.33 4.14 4.44 4.00 4.10
2016 2017 2018 2019 2020	Main instructor	University of Pittsburgh, HRS 2727: Capstone Project	19 24 24 24 24	15	4.30 4.24 4.53 4.05 4.09
2016 2017 2018 2019 2020	Main instructor	University of Pittsburgh, HRS 2926: Scholarly Paper	15 19 23 24 24	15	4.50 4.73 4.44 4.33 4.78
2020	Co-teaching	University of Pittsburgh, HRS2885: Trans-Femoral Prosthetics	24	5	3.40

Curriculum Development/Teaching Products/Media Products:

Date	Title	Brief explanation
2019	Pathology for P&O e-textbook	Based on materials developed over the first years of teaching this class, available to other instructors through the Tophat platform (ISBN: 9781774121245)
2014-ongoing	Study abroad excursion to Germany	Based on experience with previous informal excursions, developed a curriculum to pursue inclusion of this offering in the course catalog (currently on hold due to staffing changes and Covid)

Funding related to Teaching and curriculum development activities

2016/05/01-2016/05/22

John G. Bowman Faculty Grant, University of Pittsburgh

Fiedler (PI), Total Amount \$2,000

Preparing a study abroad offering for Pitt MSPO students

2020/05

German Academic Exchange Service (DAAD)

Fiedler (PI), Total Amount: EUR 9,600

Group study visit with students (forfeited when planned excursion in May 2020 was cancelled due to COVID-19)

Mentoring:

Dates	Mentor Role	Name of Mentee(s)	Research topic	Mentee Achievements
2014	MS Capstone project co-advisor	Tim Nolan, Lauren Casada	Addressing Common Prosthetic Issues in the Below Knee Amputee with Vacuum Suspension	
2014	MS Capstone project co-advisor	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	Undergrad Research intern mentor	Connor Malchow	Effect of observation on gait in lower limb amputees	Journal manuscript and conference presentation
2014-2015	MS Capstone project co-advisor	Mark Bucci, Mariah Freeze, Sara Lustusky, Leah Wolfe, Ali Yorke	Animal O&P, A White Paper	
2015	Undergrad Research intern mentor	Alexandra Delazio	Measuring alignment angles of prosthesis adapters via proximity sensors	Five conference presentations, poster award
2015	Undergrad Research intern mentor	Shea McMurtry	Comparing limb forces during soccer play on different surfaces	Journal manuscript and conference presentation
2015	High school intern mentor	Anna Marie Clark	“Comparing different strategies for operating drum set foot pedals with lower limb prostheses”	Conference presentation
2015	High school intern mentor	Houda Oslouim	Rating domestic P&O education programs	

2015-2020	PhD student committee chair	Krista Kutina	Development and Efficacy of a Mobile Real Time Visual Feedback System for Gait Retraining after Lower Extremity Limb Loss	Obtained grant funding, published journal manuscript, eight abstracts, and one patent
2015-2016	MS Capstone project advisor	Alex Ashoff, Corin Shirley	Effect of shoes on mechanical properties of prosthetic feet utilized in tropical countries	Obtained external funding, two conference presentations
2015-2016	MS Capstone project advisor	Christopher Cunningham	Comparison of prosthetic feet for use on boats	Conference presentation
2015-2016	MS Capstone project advisor	Adam Maurer	Monitoring Compliance with exercise programs targeting atrophy and reduced strength in the residual limb of lower extremity amputees	
2015-2016	MS Capstone project advisor	John Kesselring	Additive Manufacturing technology in prosthetics: Effects on quality, time, and cost	Conference presentation
2015-2016	MS Capstone project advisor	Ashley Muller	The control of infectious disease in prosthetics and orthotics	Journal manuscript and conference presentation
2015-2016	MS Capstone project advisor	Rachel Beaudette	Sample sizes in prosthetics research: A statistical review on validity	Journal manuscript and conference presentation
2016	Undergrad Research internship mentor	Anna Marie Clark	Effectiveness of Blinding in prosthetics & orthotics research protocols	Journal manuscript and conference presentation
2016-2017	Bioengineering senior design project Team mentor	Melissa Smith, Alexander Weinstein, Mikayla Ferchaw, Christopher Togalski, Inderbir Sondh	Size-adjustable Prosthetic Foot	Conference presentation
2016-2017	MS Capstone project advisor	Cody Reimers	Interaction effect of amputation level and exercise on cardiovascular fitness	
2016-2017	MS Capstone project advisor	Julie Burke	Comparison of 3D-printed and conventionally produced upper limb prosthesis	Journal manuscript and two conference presentations
2016-2017	MS Capstone project advisor	Andrew Biaesch	Orthotics manufacturing methods applied to baseball cap reinforcements for concussion protection	

2016-2017	MS Capstone project advisor	Angela DeCandia	Efficacy of articulated stubbies for bilateral leg prostheses on uneven terrain	Conference presentation
2016-2017	MS Capstone project advisor	Sarah Brohaugh	Scientific Impact of publications in P&O journals	
2016-2017	MS Capstone project advisor	Jake Davis	Durability of low-cost 3D-printed feet	
2016-2017	MS Capstone project advisor	Mitchell Himmel	Effect of prosthetic feet on basketball performance	
2016-2017	MS Capstone project advisor	Emily Heskett	Correlation between physical activity and residual limb pain in people with lower limb loss	Two conference presentations
2016-2017	MS Capstone project advisor	Mark Boardley	Effect of different foot orthotics on bicycling efficiency	
2016-2017	MS Capstone project advisor	Kori Campbell	Differences in patient satisfaction without and with 3D printed upper limb prostheses	
2016-2017	MS Capstone project advisor	Tyler Hartman	Application of Cross-Education Theory in Orthotics	Conference presentation
2016-2017	MS Capstone project advisor	Stephen Zetts	Viability of manufacturing orthosis joints from scrap materials	Conference presentation
2016-2017	MS Capstone project advisor	Joshua Tanor	Effect of Practitioner Education Level on the Fit of Prosthesis Sockets	
2016-2017	MS Capstone project advisor	Bobby Dobson	Effect of Hydraulic Prosthesis Feet on Slope Walking	
2016-2017	MS Capstone project advisor	Brooke James	Emotional effects of wearing traditional and non-traditional prosthesis covers	
2016-2017	MS Capstone project advisor	Julie Lajoie	Integration of Physical Therapy services and Prosthetics & Orthotics	
2016-2017	MS Capstone project advisor	Mike Ball	Feasibility of manufacturing customized foot orthotics on hobby grade 3D printers	Conference presentation
2016-2017	MS Capstone project advisor	Cameron Willman	Outcome comparison of rigid and soft post-operative dressings for limb amputation residuals	
2017-2018	MS Capstone project advisor	Ryan Adams	Best geometry for durability in 3D printed pylons	
2017-2018	MS Capstone project advisor	Tyler Berger	Exercises & contracture prevention	
2017-2018	MS Capstone project advisor	Thomas Boyle	BOA variable socket system	Conference presentation
2017-2018	MS Capstone project advisor	Joshua Bravo	Differences in amputee vital capacity	

2017-2018	MS Capstone project advisor	Phillip Call	Effect of Footwear on prosthetic Foot stiffness	
2017-2018	MS Capstone project advisor	Katherine Ching	Comparing dexterity with body-powered and myo-electric UE prostheses	Conference presentation, won poster award
2017-2018	MS Capstone project advisor	Gyasi Cooper	Sleep quality in Lower Limb Amputees	Conference presentation
2017-2018	MS Capstone project advisor	Megan Diemer	Lower Limb Orthoses for Skiing	
2017-2018	MS Capstone project advisor	Adam Duncan	Single- actuation 3D printed hand	
2017-2018	MS Capstone project advisor	Marty Havenar	Levels of bacterial contamination in P&O devices	
2017-2018	MS Capstone project advisor	Scott Hoskins	Effect of multi-axial crutch foot (hurry-cane)	
2017-2018	MS Capstone project advisor	Renee Horn	Effectiveness of vision blinding to conceal prosthetic componentry interventions	
2017-2018	MS Capstone project advisor	Joshua Kinsey	Outcome variables measured with instrumented liners	
2017-2018	MS Capstone project advisor	Erik Meyer	Utility of torsion adapter for golf play	
2017-2018	MS Capstone project advisor	Conner Morris, Lance Valentine	Virtual Reality use to prevent reactivity effect in prosthetics gait analysis	Conference presentation
2017-2018	MS Capstone project advisor	Geoffrey Osik	Effect of climate zone on sweating in liners	Conference presentation
2017-2018	MS Capstone project advisor	Stephen Probert	Tissue release for spasticity	
2017-2018	MS Thesis committee chair	Anna Seibert	Identifying P&O device users' problem solutions by mining Facebook data	Two conference presentations
2017-2018	MS Capstone project advisor	Sarah Smith	Comparative effect of Silver-Ion-infused liners	
2017-2018	MS Capstone project advisor	Jacob Weir	Observed statistical power in published orthotics research	Conference presentation
2017-2018	MS Capstone project advisor	Peter Zenger	Self-efficacy and P&O education level	Conference presentation, won poster award
2018-2019	MS Capstone project advisor	Anna Benson	Secondary analysis of AFO gait data	
2018-2019	MS Capstone project advisor	Alyssa Brunswick	Preferred prosthesis socket modifications to facilitate physical exercise	
2018-2019	MS Capstone project advisor	Monica Burdette	Investigating methods to grind scrap plastic for recycling (3D printing)	

2018-2019	MS Capstone project advisor	Jacob Calvert	Developing a protocol to test prosthetic foot keel stiffness	
2018-2019	MS Capstone project advisor	Annie Caulfield	Biomimetic prosthesis pylon design	
2018-2019	MS Capstone project advisor	Claude Chandler	Quantifying claimed properties of the Infinite Socket	
2018-2019	MS Capstone project advisor	Shyann Christian	Effect of degree level on salary in P&O	
2018-2019	MS Capstone project advisor	Yona Cloonan	Correlations between limb loss and opioid addiction	
2018-2019	MS Capstone project advisor	Jack DeVillez, Jenna Sabato	Lower limb prostheses as competitive advantage in Darts	Conference presentation, submitted journal manuscript
2018-2019	MS Capstone project advisor	Lucas Grim	Properties of a 3D-printed Upper Limb Prosthetics hook	
2018-2019	MS Capstone project advisor	Catie Holmes	Clinical utility of a unified outcomes assessment instrument	
2018-2019	MS Capstone project advisor	Rashi Jha	Low cost ESAR foot design	
2018-2019	MS Capstone project advisor	Drew Kjellson	Durability of different kinds of Ankle Foot Orthoses	Conference presentation
2018-2019	MS Capstone project advisor	Erin McGraw	Efficacy of an advanced AFO design in preventing skin irritation	Conference presentation, won poster award
2018-2019	MS Capstone project advisor	Lindsey Nichols	Outcomes with hydrostatic prosthesis sockets	
2018-2019	MS Capstone project advisor	Charles Noble	Fall training/ fall prevention potential in P&O	Conference presentation, won poster award, journal publication
2018-2019	MS Capstone project advisor	Nick Nunkovich	Comparing terminal devices for Basketball shooting	Conference presentation
2018-2019	MS Capstone project advisor	Lauren Szumski	Use of outcome measure tools by P&O clinicians	
2018-2019	MS Capstone project advisor	Bennett Weckler	Effect of orthotic bracing on Golf Swing	Conference presentation
2019	Undergrad Research intern mentor	Peter Gibson	Visual feedback for gait retraining	
2019	BS Thesis committee member (University of Applied Sciences Giessen)	Nicola Hanssmann	Using Sound Emissions Analysis to improve the alignment of lower limb prostheses	Conference presentation

2019	BIOE 2152: Medical Product Development, Team mentor	Ross Beresford, Brinden Elton, Raymind Toncich, Madhumita Prahalladachar	Navigating regulatory approval for a mobile feedback system for gait retraining	
2019- 2020	MS Capstone project advisor	Kate Carbonier	Effectiveness of the Ewing procedure	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Kevin Demeza	Efficacy of sole wedge for golf swing consistency	
2019- 2020	MS Capstone project advisor	William Eddy	Fabrication standards for custom P&O devices	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Alexis Emad	Utility of weighted arm cuffs to improve gait in P&O device users	
2019- 2020	MS Capstone project advisor	Ivona Mikulic	Gender trends in P&O authorship	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Brianna Perry, Kevin Quinn	Phantom pain treatment with vibration therapy	Obtained funding, Conference presentation
2019- 2020	MS Capstone project advisor	Lisa Richardson	Comparing trunk orthosis fabrication methods	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Jeremy Shuppert	Exercise and quality of life in P&O patients	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Philip Smith	A simple prosthesis adapter to improve pseudarthrosis for skating	Submitted conference abstract
2019- 2020	MS Capstone project advisor	Nicholas Sposito	Night bracing effect on sleep quality	
2019- 2020	MS Capstone project advisor	Geoffrey Webb	Effectiveness of devices to treat shin splints	
2019- 2020	MS Capstone project advisor	Farzana Zafar	Assessing P&O manufacturing methods	Submitted conference abstract
2019- 2020	MS Thesis committee member (Widener University)	Danielle Sell	Effect of different prosthetic liner materials on transtibial amputee gait mechanics	Conference presentation
2019- 2020	MS Thesis committee member	Robert Johnston	Effect of Temperature Control Liner Materials on Long Term Outcomes of Prosthesis Use	Conference presentation

	(Widener University)			
2020	Undergrad Research intern mentor	Zachary Roy, Nathaniel Mitrik	Developing and testing a prosthetic tail for balance control during gait	One conference abstract accepted, 3 more submitted
2020	MD student research intern co-mentor	Laura Weiss	Determinants of Accommodation to Prosthetic Interventions in People with Lower Limb loss	Conference presentation, Best Paper Award
2020	Undergrad Research mentor	Selvin Hernandez	A refined prosthesis liner design with integrated vibration motors	
2020-ongoing	MS Capstone project advisor	Nicholas Charon	Gait symmetry in real-life scenarios (vs. lab setting)	
2020-ongoing	MS Capstone project advisor	MacKenzie Conlen	Recycling check sockets	
2020-ongoing	MS Capstone project advisor	Carter Cross	Method of plastic recycling for deep drawing	
2020-ongoing	MS Capstone project advisor	Zachary Fricke	Long-term limb volume loss in AFO users	
2020-ongoing	MS Capstone project advisor	Robert Groves	Plaster measuring Bucket/App	
2020-ongoing	MS Capstone project advisor	Megan Hrit	Evaluating 3D printed prosthetic feet	
2020-ongoing	MS Capstone project advisor	Baily King	Amputee-specific home modifications, effects on mobility	
2020-ongoing	MS Capstone project advisor	Robert Larrimer	Effects of AFO stiffness on Knee Angle	
2020-ongoing	MS Capstone project advisor	Matthew McClintock	Outcomes of pediatric upper limb prostheses –Enable devices vs. traditional prosthetics	
2020-ongoing	MS Capstone project advisor	Jessica Sider	Utility of Aircast splint for treating joint ailments in dogs	
2020-ongoing	MS Capstone project advisor	Jonathan Stuchlik	Developing and testing prosthesis alignment sensor	
2020-ongoing	MS Capstone project advisor	Sophia Thompson	Does body image correlate with gait biomechanics?	
2020-ongoing	MS Capstone project advisor	Olivia Tuck	Utility of Biomech tech to identify Amputee gait deviations	
2020-ongoing	MS Capstone project advisor	Nolan Wilson	Feasibility of P&O/PT collaboration by telemedicine	
2020-ongoing	MS Capstone project advisor	Isaac Yoder	Effectiveness of hydraulic feet when controlling for mass	

Mentored students' research funding

2015/06-2016/05

OPERF Fellowship, Orthotic and Prosthetic Education and Research Foundation (OPERF)

Shirley (PI), Total Amount: \$5,000

Effect of Shoes on the Mechanical Properties of Prosthetic Feet in Tropical Countries.

2016/02-2017/12

Foundation for PM&R, 2016 Milbank Veterans Rehabilitation Research Grant

Kutina (PI), Total Amount: \$19,965

Real Time Mobile Visual Feedback on Gait Retraining in the Amputee Population: A Pilot Study.

2014/05-2016/07

ASPIRE # 1262670, University of Pittsburgh/National Science Foundation

Cooper (PI)

Reactivity Effect of Observation in Prosthetic Gait.

2018/04-2018/11

NSF I-Corps 0044636-00 sub award

Pitt Innovation Institute (Master Institution), Total amount \$5,000

Wearable Feedback System for Gait Retraining

2018/01-2019/06

Pitt Innovation Challenge

Kutina (PI), Total Amount: \$125,000

Movisu-Fit -Real Time Mobile Visual Feedback on Gait Retraining in the Prosthesis Users.

2018/08 – 2019/07

Center for Medical Innovation (CMI) Early-Stage Medical Technology Research and Development

Kutina (PI), Total Amount: \$25,000

MOVISU-FIT: Mobile Wearable System for Real Time Visual Feedback and Gait Training

2019/10-2020/12

Pitt Innovation Challenge

Perry (PI), Total Amount: \$25,000

Good Vibrations – Vibration Therapy to combat Phantom Limb Pain.

2020/06-08

Rehabilitation Research Experience for Medical Students

Weiss (PI), Total Amount: \$4,000

Influence of demographic factors on accommodation to prosthetic interventions

RESEARCH

Current Grant Support:

Grant Number (funded)	Grant Title	Role in Project	Years Inclusive	Source \$ Amount
Rehabilitation Institute Pilot Grant	Smartglass-based feedback for gait rehabilitation training	PI 10% FTE 1.2 Calendar Months	2020/07-2021/06	\$29,820 indirects: \$0
Pitt Seed Project Grant	Mobile Visual Feedback for Gait Training	PI 5% FTE 0.6 Calendar Months	2019/07-2021/06	\$50,000 indirects: \$0
W81XWH-19-DMRDP-CRMRP-RESTORE	Improving physical function and patient-reported outcomes through a quantitatively-informed socket design process	co-PI 20% FTE 2.4 Calendar Months	2020/10-2024/09	\$1,500,000 Sub-award: \$543,249 indirects: \$196,125

Prior Grant Support:

Grant Number (funded)	Grant Title	Role in Project	Years Inclusive	Source \$ Amount
W81XWH-17-1-0700, Congressionally Directed Medical Research Programs	Effect of temperature control liner materials on long term outcomes of prosthesis use	PI 25% FTE 3 Calendar Months	2017/09-2020/08	\$499,500 indirects: \$133,798
EBP-043014, AOPA, Center for O&P Learning and Outcomes/Evidence-Based Practice	Step-by-step variations in Amputee Gait	PI 10% FTE 1.2 Calendar Months	2014/09-2015/08	\$14,950 indirects: \$0
Education Faculty Travel grant, Semantic Compaction Systems	Assessing step-by-step variability as a measure of accommodation to prosthetic interventions	PI 0% FTE	2016/03	\$1,200 indirects: \$0
W81XWH-14-C-0013, SBIR DHP13-017	Advanced Sensor Integration for Prosthetic	Consultant 5% FTE 0.6 Calendar Months	2015/08-2018/03	\$1,150,000 Sub-award: \$50,000

	Socketing Monitoring.			
NSF, SBIR 17-544	SBIR Phase I: Integrating alignment angle sensors into standard prosthesis componentry	Consultant 0% FTE	2018/01- 2019/02	\$225,000 Sub-award: \$65,000
1527140, NRI	Balance Recovery Control for Amputees Using Powered Leg Prostheses	co-Investigator 10% FTE, 1.2 Calendar Months	2016/09- 2019/07	\$900,000 sub-award: \$39,086
Orthotic and Prosthetic Group of America	Developing and testing Functional Mobility Assessment tool for P&O patients	Co-I 5% FTE 0.6 Calendar Months	2017/01- 2019/12	\$100,000/year
Orthotics and Prosthetics Education and Research Foundation	Investigating prosthesis users' accommodation time to changes in prosthetic componentry	PI 5% FTE 0.6 Calendar Months	2018/07- 2020/06	\$24,828 indirects: \$2,273

Other research related activities

Patents

- [1] **Fiedler, G.**, Akins, J.S. (2016) "Alignment angle sensor for limb prostheses", Patent application WO2017059115A1, published April 6, 2017
- [2] Kutina, K.L., **Fiedler, G.** (2018) "System and Methods for Gait and Running Functional Improvement and Performance Training", Patent application US20190117121, published April 25, 2019
- [3] Perry, B., **Fiedler, G.**, Quinn, K. (2019) "Vibration Therapy against Phantom Limb Pain", Patent application 62/897,979, filed September 9, 2019

Editorial Board Member

Journal of Prosthetics and Orthotics, Prosthetics and Orthotics International (Associate Editor)

Journal refereeing

American Journal of Physical Medicine & Rehabilitation, Applied Sciences, Archives of Physical Medicine and Rehabilitation, Computers in Biology and Medicine, Journal of Applied Biomechanics, Journal of Assistive Technology, Journal of Clinical Biomechanics, Journal of Engineering in Medicine, Journal of Military, Veteran and Family Health, Journal of Prosthetics & Orthotics, Journal of Rehabilitation and Assistive Technologies Engineering, Journal of Rehabilitation Research and Development, Medical Engineering & Physics, PharmacoEconomics, PLOS-One, Prosthetics and Orthotics International, Prosthesis, Sensors, Transactions on Biomedical Engineering, Transactions on Neural Systems & Rehabilitation Engineering

Grant reviewing

Department of Defense Congressionally Directed Medical Research Programs (CDMRP), The Netherlands Organization for Scientific Research (NWO), Orthotics and Prosthetics Education and Research Foundation (OPERF), Toyota Mobility Unlimited Challenge Science reviewer

LIST of CURRENT RESEARCH INTERESTS

Clinical trials of P&O interventions, Wearable data collection equipment, Process optimization of lower limb prosthesis fitting and alignment

INVITED SEMINARS AND LECTURESHIPS

Media interviews

O&P Almanac, Psychology Today, SHRS Facets, OPGA Connection, THMagazin

Regional Presentations

Fiedler, G. (2019). "How do patients respond to Prosthetics & Orthotics interventions? – Findings from recent research at the University of Pittsburgh", Pennsylvania Chapter of the AAOP Spring meeting, Mar 9-11, (invited presentation)

International Presentations

Fiedler, G. (2013). "Prosthesis-integrated Load Cells as Alternatives to Conventional Gait Analysis Methods – Capabilities and Limitations", ISPO World Congress 2013, Symposium on load measurement for evidence-based practice. Hyderabad, India, February 4-7. (invited presentation)

Fiedler, G. (2019). "Common Assumptions in Prosthetics & Orthotics and How They can Affect Quality of Care", 2nd International and 13th National Congress of Orthotics and Prosthetics, Isfahan, IRAN, Apr 24-26, (invited keynote presentation)

SERVICE

Service activities related to memberships in professional and scientific societies

International Society of Prosthetics & Orthotics World Congress	
Scientific Program reviewer	2015, 2017, 2019
American Orthotic and Prosthetic Association Research Committee Member	2019-ongoing

University and SHRS Service

MSPO applicant review	2015-ongoing
MSPO space expansion	2017-2019

SHRS Doctoral Research Award Scientific Review Committee	2017-ongoing
RST Academic Integrity Graduate program representative	2017-ongoing
RST IRB Science reviewer	2017-ongoing
SHRS Wellness Pavilion MSPO program rep	2018-ongoing
Prosthetics & Orthotics Student Organization Faculty advisor	2018-ongoing
Pitt Senate Equity, Inclusion and Anti-Discriminatory Advocacy Committee	2019-ongoing
SHRS Deans Teaching Award committee	2021-ongoing
RST/MSPO ad-hoc committees (faculty search, promotion)	infrequently