

# Devin R. Berg

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## Professional Interests

Experiential learning in engineering education.  
International Engineering Development/Global Engineering  
Design and fabrication of medical devices.  
Bio-inspired engineering and design.  
Additive manufacturing.

## Education

2013	<b>PhD Mechanical Engineering</b> , University of Minnesota - Twin Cities
2011	<b>MS Mechanical Engineering</b> , University of Minnesota - Twin Cities Minor: Biomedical Engineering
2008	<b>BS Mechanical Engineering</b> , University of Wisconsin - Madison

## Academic Positions

2016–present	<b>Associate Professor</b> , University of Wisconsin - Stout
2015–present	<b>Program Director</b> , Mechanical Engineering, University of Wisconsin - Stout
2016	<b>Visiting Professor</b> , University of Applied Sciences - Upper Austria
2014–2016	<b>Program Director</b> , Manufacturing Engineering, University of Wisconsin - Stout
2012–2016	<b>Assistant Professor</b> , University of Wisconsin - Stout
2015	<b>Research Scholar</b> , Discovery Center, University of Wisconsin - Stout
2012	<b>Adjunct Faculty</b> , University of St. Thomas
2011–2012	<b>Lab Supervisor</b> , Medical Devices Center
2010–2012	<b>Teaching Assistant</b> , University of Minnesota - Twin Cities
2008–2012	<b>Graduate Research Assistant</b> , University of Minnesota - Twin Cities

## Peer Reviewed Journal Articles

- 2017 J. Dekarske and D. R. Berg. Path oriented powered wheelchair navigation assistance. *The Journal of Open Engineering*, 2017. under review
- 2016 D. R. Berg, T. Lee, and E. Buchanan. A methodology for exploring, documenting, and improving humanitarian service learning in the university. *Journal of Humanitarian Engineering*, 2016
- 2015 D. R. Berg. Twitter in the engineering classroom. *Journal of Online Engineering Education*, 6(2), 2015
- 2010 Z. G. Liu, D. R. Berg, V. N. Vasys, M. E. Dettmann, B. Zielinska, and J. J. Schauer. Analysis of C1, C2, and C10 through C33 particle-phase and semi-volatile organic compound emissions from heavy-duty diesel engines. *Atmospheric Environment*, 44(8):1108–1115, 2010
- 2009 Z. G. Liu, D. R. Berg, T. A. Swor, J. J. Schauer, and B. Zielinska. A study on the emissions of chemical species from heavy-duty diesel engines and the effects of modern aftertreatment technology. *SAE Technical Paper Series 2009-01-1084*, 2009
- 2009 J. Schmidt, D. R. Berg, L. Ploeg, and H. L. Ploeg. Precision, repeatability and accuracy of optotrak optical motion tracking systems. *International Journal of Experimental and Computational Biomechanics*, 1(1):114–127, 2009
- 2008 Z. G. Liu, D. R. Berg, and J. J. Schauer. Effects of a zeolite-selective catalytic reduction system on comprehensive emissions from a heavy-duty diesel engine. *Journal of the Air & Waste Management Association*, 58(10), 2008
- 2008 Z. G. Liu, D. R. Berg, T. A. Swor, and J. J. Schauer. Comparative analysis on the effects of diesel particulate filter and selective catalytic reduction systems on a wide spectrum of chemical species emissions. *Environmental Science and Technology*, 42(16):6080–6085, 2008
- 2008 Z. G. Liu, D. R. Berg, and J. J. Schauer. An analysis of methods for measuring particulate matter mass emissions. *SAE Technical Paper Series 2008-01-1748*, 2008
- 2008 Z. G. Liu, D. R. Berg, and J. J. Schauer. Detailed effects of a diesel particulate filter on the reduction of chemical species emissions. *SAE Technical Paper Series 2008-01-0333*, 2008

## Invited Talks

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| 2017 | D. R. Berg. Open Engineering. University of California-Davis Mechanical and Aerospace Engineering Seminar, 2017  |
| 2017 | D. R. Berg. Assistive Technology as a Freshmen Design Experience. Stout University Foundation Board Meeting, 2017  |
| 2015 | D. R. Berg and A. Roush. Engineering to Help. Keynote address: Smart Girls Rock!, Menomonie Middle School, 2015  |
| 2015 | D. R. Berg. Engineers Without Borders USA at UW-Stout. Menomonie Rotary and Menomonie Sunrise Rotary, 2015   |
| 2014 | D. R. Berg. HandsOnMechanics.org: A repository for demonstrations and other resources to promote best practices in the mechanics classroom. In <i>Proceedings of the 2014 ASEE Annual Conference</i> , Indianapolis, IN, 2014. ASEE  |
| 2013 | D. R. Berg. Surgical robotics under fluid power. In <i>Proceedings of the 2013 Design of Medical Devices Conference</i> , Minneapolis, MN, 2013. ASME  |
| 2012 | D. R. Berg, P. Y. Li, and A. G. Erdman. Achieving dexterous manipulation for minimally invasive surgical robots through the use of hydraulics. In <i>Proceedings of the 2012 ASME Dynamic Systems and Control Conference</i> , Fort Lauderdale, FL, 2012. ASME. (Best Paper in Session)  |
| 2010 | D. R. Berg, P. Y. Li, A. G. Erdman, T. Cui, and T. P. Kinney. Robotic, multi-articulated endoscopic surgical tools for natural orifice transluminal endoscopic surgery. In <i>Doctoral Consortium for Medical Simulation and Robotics, American College of Surgeons Accredited Education Institutes Consortium</i> , Chicago, IL, 2010 |

## Peer Reviewed Conference Proceedings

- 2017 T. Lacksonen, S. Springer, and D.R. Berg. Global engineering projects from the Young African Leaders Initiative. In *Proceedings of the 2017 ASEE Annual Conference*, Columbus, OH, 2017. ASEE. under review
- 2017 T. Lee, D. R. Berg, and E. Buchanan. Exploring, documenting, and improving humanitarian service learning through Engineers Without Borders USA. In *Proceedings of the 2017 ASEE Annual Conference*, Columbus, OH, 2017. ASEE. under review
- 2017 D.R. Berg and M. Wigdahl. Work in progress: Assistive technology for freshmen design and k-12 outreach. In *Proceedings of the 2017 ASEE Annual Conference*, Columbus, OH, 2017. ASEE. under review
- 2016 D. R. Berg and T. Lee. Incorporation of liberal education into the engineering curriculum at a polytechnic. In *Proceedings of the 2016 ASEE Annual Conference*, New Orleans, LA, 2016. ASEE
- 2015 D. R. Berg. Use of a rube goldberg design project for engineering dynamics. In *Proceedings of the 2015 ASEE Annual Conference*, Seattle, WA, 2015. ASEE
- 2015 D. R. Berg. The relationship between class size and active twitter participation in the engineering classroom. In *Proceedings of the 2015 ASEE Annual Conference*, Seattle, WA, 2015. ASEE
- 2014 D. R. Berg. Evaluation of student learning outcomes due to self-guided engineering analysis of surroundings. In *Proceedings of the 2014 ASEE Annual Conference*, Indianapolis, IN, 2014. ASEE. Mechanics Division Best Paper Award
- 2013 D. R. Berg. Experiences with inquiry-based learning in an introductory mechanics course. In *Proceedings of the 2013 ASEE North Midwest Section Conference*, pages 318–324, Fargo, ND, 2013. ASEE
- 2013 F. Capaldi and D. R. Berg. Outcomes of using an infinitely explorable online learning system. In *Proceedings of the 2013 ASEE Annual Conference*, Atlanta, GA, 2013. ASEE
- 2012 D. R. Berg, L. A. Harder, and A. G. Erdman. Generating interest in technology and medical devices through an interactive educational game. In *Proceedings of the 2012 ASEE Annual Conference*, San Antonio, TX, 2012. ASEE
- 2011 D. R. Berg, T. P. Kinney, P. Y. Li, and A. G. Erdman. Determination of surgical robot tool force requirements through tissue manipulation and suture force measurement. In *Proceedings of the 2011 Design of Medical Devices Conference*, Minneapolis, MN, 2011. ASME
- 2011 D. R. Berg, A. Carlson, W. K. Durfee, R. M. Sweet, and T. Reihsen. Low-cost, take-home, beating heart simulator for health-care education. In *Proceedings of Medicine Meets Virtual Reality 18*, Newport Beach, CA, 2011

## Poster Presentations

2016	J. Dekarske and D. R. Berg. Path oriented powered wheelchair navigation assistance. In <i>Proceedings of the 2016 BMES Annual Meeting</i> , Minneapolis, MN, 2016. Biomedical Engineering Society
2016	W.V. Shi, D.R. Berg, C. Liu, and C. Anderson. Robotics REU in undergraduate engineering research. Menomonie, WI, 2016. Stout Summit
2010	D. R. Berg, P. Y. Li, A. G. Erdman, T. Cui, and T. P. Kinney. The application of fluid power to meet the needs of surgical robotics. Minneapolis, MN, 2010. LifeScience Alley Conference & Expo
2010	D. R. Berg, P. Y. Li, A. G. Erdman, T. Cui, and T. P. Kinney. The application of fluid power to meet the needs of surgical robotics. Seattle, WA, 2010. North American Summer School in Surgical Robotics and Simulation
2009	D. R. Berg, P. Y. Li, A. G. Erdman, T. Cui, and T. P. Kinney. Robotic Multi-Articulated Surgical Tools for NOTES. Minneapolis, MN, 2009. Institute for Engineering in Medicine Innovation Showcase

## Honors and Awards

2017	ASEE Ferdinand P. Beer and E. Russell Johnston Jr. Outstanding New Mechanics Educator Award
2017	ASEE Campus Representative North Midwest Section Recruitment Award
2016	UW-Stout Diversity Award (Team Category)
2016	Discovery Center Collaborator of the Year
2014	ASEE Mechanics Division Best Paper Award
2008–2012	3M Science and Technology Fellowship

## Grants - Awarded

2017	D. R. Berg. Professional Development: Enhancing Student Success through a Model “Introduction to Engineering” Course. University of Wisconsin - Stout, 2017. Amount Awarded: \$664
2017	D. R. Berg. College Collaboration: Assistive Technology as a Freshmen Design Experience. University of Wisconsin - Stout, 2017. Amount Awarded: \$2,000
2015	W. V. Shi, C. A. Anderson, D. R. Berg, and C. C. Liu. REU Site: Interdisciplinary Research Experiences in Robotics for Assistive Technology. National Science Foundation - Research Experiences for Undergraduates, 2015. Amount Awarded: \$230,400
2015	D. R. Berg. Professional Development: Presentation at the 2016 American Society for Engineering Education Annual Conference. University of Wisconsin - Stout, 2015. Amount Awarded: \$1,500
2015	E. Buchanan, D. R. Berg, and T. Lee. Exploring, Documenting, and Improving Humanitarian Service Learning through Engineers Without Borders USA. National Science Foundation - Cultivating Cultures for Ethical STEM, 2015. Amount Awarded: \$454,065
2015	W.V. Shi, D. R. Berg, and C.C. Liu. Research Incubator Grant: Development of a NSF REU Proposal in Robotics and Control Systems. University of Wisconsin - Stout, 2015. Amount Awarded: \$10,000
2014	D. R. Berg. Professional Development: Presentation at the 2015 American Society for Engineering Education Annual Conference. University of Wisconsin - Stout, 2014. Amount Awarded: \$1,874
2014	F. M. Capaldi and D. R. Berg. An Intelligent Infinitely Explorable Online Learning Environment (Re-Submission). National Science Foundation - STTR Phase I, 2014. Amount Awarded: \$224,802
2014	D. R. Berg and W. Stry. STEPS for Girls and FIRST LEGO League Competition at the University of Wisconsin-Stout. Xcel Energy Foundation, 2014. Amount Awarded: \$8,000
2013	D. R. Berg. Professional Development: Presentation at the 2014 American Society for Engineering Education Annual Conference. University of Wisconsin - Stout, 2013. Amount Awarded: \$1,550
2013	D. R. Berg. Initiation Grant: Design and Control of a Desktop Laser Welder Positioning System. University of Wisconsin - Stout Discovery Center, 2013. Amount Awarded: \$15,834

## Service to the Field

2017–present	Member: EWB-USA Diversity and Inclusivity Workgroup
2016–present	Member: Center for Open Science Preprint Advisory Group
2016–present	Director: engrXiv, the eprint server for engineering
2016–present	Founding Editor: The Journal of Open Engineering
2016–present	Secretary: Faculty Leadership Council, Engineers Without Borders USA
2013–present	Trustee: hands-on-mechanics.org (ASEE Mechanics Division)
2013–present	Director: ASEE Mechanics Division Executive Committee
2013–present	Reviewer: ASEE Annual Conference
2014–2016	Associate Editor: Directory of Open Access Journals, <a href="http://doaj.org/">http://doaj.org/</a>
2014	Session Moderator: ASEE Annual Conference
2014	Reviewer: International Conference on Transformations in Engineering Education
2014	Reviewer: Soft Robotics, Mary Ann Liebert Inc. Publishers
2012–2013	Reviewer: ASME Dynamic Systems and Control Conference

## Affiliations

Biomedical Engineering Society  
Wisconsin/Nicaragua Partners of the Americas  
Engineers Without Borders USA  
American Society for Engineering Education  
American Society of Mechanical Engineers  
Pi Tau Sigma (Honorary Mechanical Engineering Society)  
Tau Beta Pi (Honorary Engineering Society)

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