

# **CURRICULUM VITAE**

## **RYAN JOSEPH CALDWELL**

### **PERSONAL INFORMATION**

Full Name: Ryan J. Caldwell, CP, LP, FAAOP  
Work Address: 1701 E. Woodfield Road, Suite 555, Schaumburg, IL 60173  
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### **EDUCATION**

2003 Northwestern University, Feinberg School of Medicine  
Certificate of Prosthetics

2002 Northwestern University, Feinberg School of Medicine  
Certificate of Orthotics

1999-2001 Northeastern Illinois University  
Bachelor of Science, Business Marketing

### **HONORS**

2017 Shortlisted Candidate in the Selection of the ISPO Brian & Joyce  
Blatchford Award, International Society for Prosthetics and Orthotics

2016 Clinical Creativity Award from the American Academy of Orthotists  
and Prosthetists

2010 Fellow of the American Academy of Orthotists and Prosthetists

### **PROFESSIONAL SOCIETY MEMBERSHIPS**

2003-Present American Academy of Orthotists and Prosthetists

2003-Present Midwest Chapter  
American Academy of Orthotists and Prosthetists

## PROFESSIONAL and SCIENTIFIC SERVICE

- 4/2016-Present Board Member, Midwest Chapter of the American Academy of Orthotists and Prosthetists
- 7/2015-Present Co-course developer and Lecturer, Northwestern University  
Clinical Instructor for the “Northwestern University Flexible Subischial Socket Technology Courses” presented at Northwestern University Prosthetic and Orthotic Center
- 9/2014-Present Research Prosthetist, Northwestern University  
Clinical Research Prosthetist working on NIH award  
“Interface Monitoring System to Promote Residual Limb Health.”
- 8/2013-12/2014 Research Prosthetist, Scheck and Siress Prosthetics  
Clinical Research Prosthetist working on American Orthotic and Prosthetic Association Small Grant Award “The Influence of Vacuum-Assisted Suspension on Clinical Outcomes in Lower Limb Amputees.”
- 9/2010 – Present Research Prosthetist, Northwestern University  
Clinical Research Prosthetist working on Department of Defense Technology Award, “Development of Subischial Prosthetic Sockets with Vacuum-Assisted Suspension for Highly Active Persons with Transfemoral Amputations.”
- 9/2010 – 2014 Research Chair, Subatmospheric Technology Group  
Research Chair for Subatmospheric Technology Group, Scientific Society of American Academy of Orthotists and Prosthetists
- 2008 - Present Educator of “Active Vacuum Technologies and Transtibial Total-Surface Weight-Bearing” course at NUPOC  
Northwestern University, Feinberg School of Medicine  
Chicago, IL
- 2007 – 2012 Orthotics and Prosthetics Educator  
Oakton Community College, Des Plaines, IL  
Physical Therapy Program
- 2001 - 2011 Prosthetics Residency Director, Co-Owner, Chief Prosthetist  
Suburban Orthotics and Prosthetics  
Des Plaines, IL

## RESEARCH GRANTS

### [Functional Performance Evaluation of the Northwestern University Flexible Sub-Ischial Vacuum \(NU-FlexSIV\) Socket for Persons with Transfemoral Amputation](#)

Department of Defense Randomized Clinical Trial

September 2015-September 2018

Principal Investigator: Stefania Fatone, PhD, BPO(Hons)

### [Interface Monitoring System to Promote Residual Limb Health](#)

National Institute of Biomedical Imaging and Bioengineering

September 22, 2014-May 31, 2018

Principal Investigators: Stefania Fatone, PhD, BPO(Hons) (NU), John Rogers, PhD (NU),

Todd Coleman, PhD (UCSD), Yonggang Huang, PhD (NU)

Submission for this award was by invitation only

### [The Influence of Vacuum-Assisted Suspension on Clinical Outcomes in Lower Limb Amputees](#)

American Orthotic and Prosthetic Association, Small Project Grant

August 2013-December 2014

Principal Investigator: Noah Rosenblatt, PhD

### [Development of Sub-Ischial Prosthetic Sockets with Assisted-Vacuum Suspension for Highly Active Persons with Transfemoral Amputations](#)

Department of Defense Peer Reviewed Orthopedic Research Program (PRORP)

Technology Development Award

September 15, 2010-September 14, 2013

Principal Investigator: Stefania Fatone, PhD, BPO(Hons)

Total Direct Costs: \$2,013,231

Submission for this award was by invitation only, based on submission of a pre-proposal: 33/93 invited to submit.

## PUBLICATIONS

Fatone S, **Caldwell R**, Stine R, Tran L, Angelico J (2018) "Evaluation of the NU-FlexSIV Socket for Persons with Transfemoral Amputation: Interim Results." *Journal of Prosthetics and Orthotics*, 30(S2):22.

Fatone S, **Caldwell R** (2018) Emboîture sous-ischiatique flexible avec prise sous vide mise au point par la Northwestern University pour les personnes ayant subi une amputation transfémorale – partie 1 : description technique. [Northwestern University Flexible Subischial Vacuum Socket for Persons with Transfemoral Amputation: Part 1 Description of Technique.] *Le Journal De L'Orthopedie*, 18(66).

Fatone S, **Caldwell R**. Technique for perforating a prosthetic liner to expel sweat. *Journal of Prosthetics and Orthotics*. 2017; 29(3):145-147. doi: 10.1097/JPO.0000000000000136

Fatone S, **Caldwell R**. [Northwestern University Flexible Subischial Vacuum Socket for persons with transfemoral amputation-Part 1: Description of Technique](#). *Prosthetics and Orthotics International*. 2017; 42(2).

Fatone S, **Caldwell R**. [Northwestern University Flexible Subischial Vacuum Socket for persons with transfemoral amputation-Part 2: Description and Preliminary Evaluation](#). *Prosthetics and Orthotics International*. 2017; 42(2).

Fatone S, Johnson WB, Tran L, Tucker K, Mowrer C, **Caldwell R**. Quantification of rectifications for the Northwestern University Flexible Subischial Socket. *Prosthetics and Orthotics International*. 2017; 42(2).

Fatone S, Major M, **Caldwell R**. Comments regarding: The benefits of using a vacuum-assisted socket system to improve balance and gait in elderly transtibial amputees by Samitier, *et al*. *Prosthetics and Orthotics International*. 2016 Dec; 40(6).

Major M, **Caldwell R**, Fatone S (2015) Evaluation of a Hybrid Vacuum Pump to Provide Vacuum-assisted Suspension for Above-knee Prostheses. *ASME. J. Med. Devices*, 9(4):0445041-0445044. doi:10.1115/1.4030507.

Major M, **Caldwell R**, Fatone S (2015) Comparative effectiveness of electric vacuum pumps for creating suspension in transfemoral sockets. *Journal of Prosthetics and Orthotics*, 27(4):149-153.

Komolafe O, Wood S, **Caldwell R**, Hansen A, Fatone S (2013) Methods for characterization of mechanical and electrical prosthetic vacuum pumps. *Journal of Rehabilitation Research and Development*, 50(8):1069–78. PMID: 24458892.

Arndt B, **Caldwell R**, Fatone S. Use of Partial Foot Prosthesis with Vacuum Assisted Suspension, *Journal of Prosthetics and Orthotics*, 23(2): 82-88

## PATENTS

Vacuum pump systems for prosthetic limbs and methods of using the same  
US 20130096694 A1

## PRESENTATIONS

- 2018 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for the Kobe College of Medical Welfare, Sanda, Japan, July 27-29, 2018.
- 2018 “Development of a prototype residual limb monitoring system”, Northwestern University Prosthetic Orthotic Center Biennial Symposium, Chicago, IL March 13, 2018.
- 2018 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for the Kobe College of Medical Welfare, Sanda, Japan, March 9-11, 2018.
- 2018 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for Pace Rehabilitation, Manchester, England, February 6-7, 2018.
- 2017 “Description and Demonstration of a Prototype Residual Limb Monitoring System”, Midwest Chapter of the American Academy of Orthotics and Prosthetics, Chicago, IL, November 11, 2017.
- 2017 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for ISPO Norway, Oslo, Norway, October 11-12, 2017.
- 2017 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for OIM, Arnhem, Netherlands, October 5-6, 2017.
- 2017 Co-presenter “Pre-conference Education-Northwestern University Subischial Vacuum Course”, Special Event American Orthotic and Prosthetic Association World Congress, Las Vegas, NV, September 5, 2017.
- 2017 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for the Kobe College of Medical Welfare, Sanda, Japan, August 24-26, 2017.
- 2017 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for the Institut de Réadaptation Gingras-Lindsay de Montréal, Montréal, Québec, May 25-27, 2017.
- 2017 Co-presenter “NU-FlexSIV Socket Interactive Course”, Special Event presented twice for the 43<sup>rd</sup> Academy Annual Meeting and Scientific Symposium, Chicago, IL, March 1-4, 2017.

- 2017 “Clinical applications and outcomes using a new hydrostatic impression technique” 43<sup>rd</sup> Academy Annual Meeting and Scientific Symposium, Chicago, IL, March 1-4, 2017.
- 2016 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU FlexSIV)”, Clinical and Didactic Course for the Össur Academy, Orlando, FL, November 18-19, 2016.
- 2016 “Where does the weight go? Effect of interface components on residual limb weight bearing tolerance in transfemoral prosthesis users”, Midwest Chapter of the American Academy of Orthotics and Prosthetics, Rosemont, IL, November 3-5, 2016.
- 2016 “Improved clinical outcomes with a new hydrostatic impression technique: Preliminary Results”. Midwest Chapter of the American Academy of Orthotics and Prosthetics, Rosemont, IL, November 3-5, 2016.
- 2016 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU-FlexSIV)”, Clinical and Didactic Course for Ortos, Copenhagen, Denmark, October 10-11 2016.
- 2016 Session Chair and Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU- FlexSIV)”, Orthopädie Technik World Congress, Leipzig Germany, May 3-6, 2016.
- 2016 Co-presenter “Northwestern University Flexible Subischial Vacuum Socket (NU-FlexSIV)”, Clinical and Didactic Course, Bayreuth, Germany, April 27-28, 2016.
- 2016 “Northwestern University Flexible Subischial Vacuum Socket (NU-FlexSIV)” Transfemoral Symposium, 42th American Academy of Orthotists and Prosthetists Annual Meeting & Scientific Symposium, Orlando, FL, March 9-12, 2016.
- 2015 Invited Speaker “Active Vacuum Prosthetics, Applications for the Lower Impact Amputee”, Össur Scientific Symposium, Orlando, FL, November 17-19, 2015.
- 2015 Co-presenter “Northwestern University Flexible Subischial Socket”, International Society of Prosthetists and Orthotists World Congress, Lyon, France, June 22-25 2015.

- 2015 Co-presenter “An Introduction to Sub Ischial Sockets with Vacuum Assisted Suspension”, Midwest Chapter of the American Association of Orthotists and Prosthetists, Chicago, IL, May 27-29 2015.
- 2014 Co-presenter “Subischial Socket with Vacuum Assisted Suspension for Persons with Transfemoral Amputation. Webinar for the American Academy of Orthotists and Prosthetists, August 26, 2014.
- 2014 Co-presenter “Subischial Socket with Vacuum Assisted Suspension for Persons with Transfemoral Amputation”, Canadian Association of Prosthetics and Orthotics, Halifax, Nova Scotia, Canada, August 6-9, 2014.
- 2014 Session Chair “NU-FlexSIV System: Northwestern University Flexible Sub-Ischial Vacuum System: Clinical Outcomes Using a New Subischial Socket with Active Vacuum Suspension”. Orthopädie Technik World Congress, Leipzig, Germany, May 13-16, 2014.
- 2014 Co-presenter “Subischial Socket with Vacuum Assisted Suspension for Persons with Transfemoral Amputation”, 40th American Academy of Orthotists and Prosthetists Annual Meeting & Scientific Symposium, Chicago, IL, February 26-March 1, 2014.
- 2013 Invited Speaker “Subischial Socket Technology: Transfemoral Vacuum Concepts and Case Studies”. 4<sup>th</sup> Annual Medi Scientific Symposium, Mallorca, Spain, June 6-9, 2013.
- 2012 “Subischial Socket Technology: Transfemoral Vacuum Concepts and Case Studies”. Midwest Chapter American Academy of Orthotists and Prosthetists (AAOP) Annual Meeting & Scientific Session, Lake Geneva, WI, September 27-29, 2012.
- 2009 Co-Presenter “Gait Kinematics and Kinetics in Subischial Sockets with Assisted-Vacuum Suspension: Case Studies of Persons with Transfemoral Amputation”, Midwest Chapter of the American Academy of Orthotists and Prosthetists, Chicago, IL, November 7, 2012.
- 2009 “Experiences with Vacuum Socket Systems” National Assembly of the American Orthotic and Prosthetic Association, Seattle, WA, September 20-23, 2009.
- 2009 “Current and Emerging Techniques with Subischial Transfemoral Socket Designs”, 35th Annual Meeting & Scientific Symposium of the American Academy of Orthotists and Prosthetists, Atlanta, GA, March 4-7, 2009.

- 2008            “Transfemoral Vacuum Systems”, American Board for Certification in Orthotics, Prosthetics & Pedorthics Review Course, Chicago, IL, 2008.
- 2007            “Vacuum Prostheses: A Look at Different Applications Potential Outcomes, Wound Closure, and Other Difficult Fittings” Midwest Chapter of the American Academy of Orthotists and Prosthetists, November, Hickory Hills, IL, 2007.
- 2007            “Experience with Vacuum Technology,” National Assembly of the American Orthotic and Prosthetic Association, Las Vegas, NV, September 17-20, 2007.

## **WORK EXPERIENCE**

- 12/2011 – Present    Prosthetist specializing in Active Vacuum Technology  
Scheck and Siress Orthotics and Prosthetics
- 9/2010 – Present    Clinical Research Associate  
Northwestern University
- 2001 – 2011           Chief Prosthetist, Clinical Director, Prosthetic Residency  
Director, Co-Owner  
Suburban Orthotics and Prosthetics  
Des Plaines, IL

**LANGUAGES**            English and Spanish