CURRICULUM VITAE

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CONTACT INFORMATION

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EDUCATION

Ph.D.	**Rehabilitation Science (2010)**	University of Pittsburgh, Pittsburgh, PA
M.S.	**Rehabilitation Science & Technology (2008)**	University of Pittsburgh, Pittsburgh, PA
B.S.	**Physical Therapy (2005)**	National Taiwan University, Taipei, Taiwan

PROFESSIONAL APPOINMENTS/EMPLOYMENT

08/2014-present	**Assistant Professor** (tenure track), Department of Physical Therapy, University of Illinois at Chicago, Chicago, IL
01/2011-06/2014	**Post-doctoral Associate,** Department of Rehabilitation Science and Technology, University of Pittsburgh, Pittsburgh, PA
10/2007-12/2010	**Graduate Student Researcher,** Rehabilitation Engineering Research Center on Spinal Cord Injury, University of Pittsburgh, Pittsburgh, PA
07/2006-08/2007	**Graduate Student Researcher,** Quality of Life Technology Engineering Research Center, University of Pittsburgh, Pittsburgh, PA
08/2006-05/2007	**Intern,** Assistive Technology, Center of Assistive Technology, University of Pittsburgh Medical Center, Pittsburgh, PA
11/2004-06/2005	**Intern,** Physical Therapy, National Taiwan University Hospital, Taipei, Taiwan
07/2004-10/2004	**Intern,** Physical Therapy, Cathay General Hospital, Taipei, Taiwan
09/2002-08/2003	**Undergraduate Research Associate,** School and Institute of Physical Therapy, National Taiwan University, Taipei, Taiwan

CERTIFICATION

2006 Rehabilitation Technology, University of Pittsburgh

GRANTS

Role	Grant Title	Agency	Amount	Years
PI	Effect of alternating pressure overlay on weight bearing tissue tolerance in people with SCI	Dabir Surface Inc.	$49k	2017-2018
PI	Effectiveness of single-legged ergometer exercise on diabetic foot ulcer healing	UIC College of Applied Health Sciences Interdisciplinary Pilot Grant	$20k	2016-2017
PI	Perfusion biomarkers for ulcer risk assessment in SCI	National Pressure Ulcer Advisory Panel	$5k	2015-2017
PI	Implementing local cooling on pressure ulcer prevention in people with spinal cord injury	Paralyzed Veterans of America (#2905)	$100 k	2013-2015
Co-I	Rehabilitation Engineering and Research Center on Spinal Cord Injury (PI: Brienza)	National Institute of Disability and Rehabilitation Research (#H133E070024)	$4.75 M	2007-2013
Co-I	Estimating the relative effects of pressure, shear, and temperature on skin tissue stress as measured by reactive hyperemia (PI: Brienza)	Hill-Rom Corp.	$47 k	2010-2012

HONORS AND AWARDS

2014 Advanced Rehabilitation Research Training Fellowship, National Institute on Disability and Rehabilitation Research training program at University of Pittsburgh

2013 McGowan Institute for Regenerative Medicine Publication of the month with Dr. A Solovey, Dr. Q Mi, Dr. Y Vodovotz, and Dr. DM Brienza

2011 Winner, Roberta Abruzzese Award, National Pressure Ulcer Advisory Panel (NPUAP)

2011 Honorable Mention, New Investigator Poster Award, NPUAP Biennial Conference

2010 Winner, Student Scientific Paper Competition, Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference

2010 First runner-up, Interprofessional Student Competition with Becky Faett, Diana Ross, and Gijsberta van Londen, University of Pittsburgh

2009 First place, Graduate Student Elevator Pitch Competition with Matthew Lee, Quality of Life Technology Center, University of Pittsburgh/Carnegie Mellon University

2009 Poster presentation finalist, NPUAP Biennial Conference

2008 Poster presentation finalist, Science2008 Conference, University of Pittsburgh

2007 Pennsylvania Assistive Technology Commercialization Initiative (PATCI) grant award with Jonathan S. Akins, The Technology Collaborative (TTC)

2005 Academic Award, National Taiwan University

2004 Presidential Award, National Taiwan University

2001 Presidential Award, National Taiwan University

INVITED LECTURES/WORKSHOPS/PODIUM PRESENTATIONS

International

2014 Integumentary Management: from Bench to Bedside. School and Institute of Physical Therapy, National Taiwan University, Dec 31.

2012 Assistive Technology and Rehabilitation Engineering Design Workshop. School and Institute of Physical Therapy, National Taiwan University, Dec 24.

2011 Pressure ulcer research at University of Pittsburgh: application of local cooling and signal processing. School and Institute of Physical Therapy, National Taiwan University, May 9.

2008 Effects of local cooling on skin perfusion response to pressure: implications to pressure ulcer prevention. School and Institute of Physical Therapy, National Taiwan University, Dec 30.

2007 Assistive Technology: from Practice to Research – Experience at U. Pitt. School and Institute of Physical Therapy, National Taiwan University, May 30.

National

2016 Microcirculatory approach to chronic wound prevention and healing. Center for Wound Healing and Tissue Regeneration, College of Dentistry, University of Illinois at Chicago, December 8.

2016 Chronic wound prevention, early detection, and healing: current strategies and challenges. Department of Physical Therapy Seminar, University of Illinois at Chicago, November 17.

2014 Pressure ulcer research – a multidisciplinary team approach. Integrative Physiology Laboratory Seminar, University of Illinois at Chicago, September 12.

2013 Relative effect of pressure, temperature, shear on non-damaging tissue ischemia. International Seating Symposium Annual Conference, March 5-9.

2011 Effects of sensation and autonomic function on reactive hyperemia following pressure with and without cooling in people with spinal cord injury. ISCoS/ASIA Annual Conference, June 4-8.

2011 Effectiveness of local cooling on enhancing tissue ischemia tolerance in people with spinal cord injury. NPUAP Biennial Conference, Feb 25-26.

2010 Effectiveness of local fast and slow cooling on pressure induced reactive hyperemia in adult human participants. RESNA Annual Conference, June 26-30.

2009 Analyzing the mechanisms of local cooling on pressure induced reactive hyperemia by applying short-time Fourier transform. RESNA Annual Conference, June 23-27.

2008 Development of a system to study the effect of local cooling on skin blood flow response to interface pressure. RESNA Annual Conference, June 26-30.

TEACHING EXPERIENCE

University of Illinois at Chicago, Chicago, IL

08/2014 – present Instructor and co-coordinator
Course Title: **Applied Pathophysiology** (PT636, 4 credits)
Lectures/labs:
- Integumentary Pathology/ Wound Care
- Endocrine system disorders
- Immune system disorders

08/2015 – present Instructor and Coordinator
Course Title: **Instrumentation for rehabilitation sciences research** (PT573, 3 credits)
Lectures/labs:
- Biological signal processing: filter design, time-frequency analysis
- Data acquisition system
- Cardiovascular measurements

06/2015 – 06/2016 Guest Instructor
Course Title: **Biophysics** (PT616, 3 credits)
Lecture:
- Biophysics in wound care

01/2016 – present Guest Instructor
Course Title: **Science in Practice I** (PT629, 3 credits)
Lectures:
- Theory and ethics in clinical practice and research
- Sampling

01/2015 – 05/2015 Instructor and Coordinator
Course Title: **Science in Practice I** (PT629, 3 credits)
Lectures:
- Journal club
- Writing research reports/critical appraisal of research articles
- Theory and ethics in clinical practice and research

- Sampling
- Choosing and interpreting clinical measures
- Experimental designs for clinical research
- Appraising evidence: beyond RCT

08/2014 – present Guest Instructor
Course Title: **Advances in Rehabilitation Sciences II** (PT506, 3 credits)
Lectures:
- Pressure injury prevention and wound healing
- Diabetes, exercise and wound healing

University of Pittsburgh, Pittsburgh, PA

01/2014 – 05/2014 Co-Instructor
Course Title: **Research Methodology** (HRS 2901, 3 credits)
Lectures:
- Sampling methods
- Experimental design
- Ethics and human subject research

08/2011 – 12/2011 Co-Instructor
01/2009 – 05/2009 Teaching Assistant
Course Title: **Rehabilitation Engineering Design** (HRS 2703, 3 credits)
Lectures:
- Customer needs identification
- Product specification
- Concept testing (user evaluation & focus group)

08/2008 – 12/2008 Teaching Assistant
Course Title: **Rehabilitation Biomechanics** (HRS 2706, 3 credits)
Lectures:
- Amplifiers and filters
- Physiological effects of electricity and electrical safety

STUDENT ADVISING/MENTORING

PhD Dissertations

Elizabeth Michalczyk PhD Dissertation Committee, Committee Member, 2018, College of Dentistry, University of Illinois at Chicago

Veronica Haywood PhD Dissertation Committee, Committee Member, 2015-present, College of Dentistry, University of Illinois at Chicago

Thomas Corbiere PhD Dissertation Committee, Committee Member, 2015-present, College of Applied Health Sciences, University of Illinois at Chicago

Thesis/Projects

Varsha Rao	MS Thesis Advisor, Committee Chair, 2017, College of Applied Health Sciences, University of Illinois at Chicago Rao was awarded Best Student Scientific Paper at the NPUAP 2017 Biennial conference
Saleh Alshammari	MS Thesis Committee Member, 2016, College of Applied Health Sciences, University of Illinois at Chicago
Nkiru Unadike	MS Project Advisor, Committee Chair, 2016, College of Applied Health Sciences, University of Illinois at Chicago
Vanessa Isles	MS Project Committee Member, 2016, College of Applied Health Sciences, University of Illinois at Chicago
Radhika Patel	MS Project Committee Member, 2016, College of Applied Health Sciences, University of Illinois at Chicago
Simisola Oludare	MS Project Committee Member, 2016, College of Applied Health Sciences, University of Illinois at Chicago
Rachelle Brick	B.Phil Thesis Committee Member, 2014, School of Health and Rehabilitation Science, University of Pittsburgh

Others

Neal Patel	Capstone project mentor, AHS, UIC
Sarah Mei	Capstone project mentor, AHS, UIC
Jaime Bromeley	Co-mentor, 2012-2014, School of Health and Rehabilitation Science, University of Pittsburgh
David Smeresky	Co-mentor, 2013-2014, School of Health and Rehabilitation Science, University of Pittsburgh Graduate mentor, 2010-2011, Department of Bioengineering Undergraduate Internship Program, University of Pittsburgh
Sean Doutt	Graduate Mentor, 2010, Rehabilitation Engineering Research Center on Spinal Cord Injury, University of Pittsburgh
Kristen Glauser	Graduate Mentor, 2010, American Student Placements in Rehabilitation Engineering (ASPIRE) Undergraduate Internship Program, University of Pittsburgh; Graduate Mentor, 2009-2010, Department of Bioengineering Undergraduate Internship Program, University of Pittsburgh; Glauser was awarded finalist of the Science2010 Conference
Sean Evans	Graduate Mentor, 2008, Rehabilitation Engineering Research Center Undergraduate Internship Program, University of Pittsburgh Evans was awarded best paper of the Internship program

SERVICE TO PROFESSION

Peer-review Activities

- Journal Editorial Board
    - Frontiers in Physiology (Clinical and Translational Physiology) (2015-present)
- Ad hoc journal reviewer
    - Archives of Physical Medicine and Rehabilitation
    - Journal of Spinal Cord Medicine
    - PLOS ONE
    - Medical Engineering & Physics
    - Assistive Technology
    - Review of Scientific Instruments
    - Brazilian Journal of Physical Therapy
    - Healthcare
    - Journal of Wound Care
    - International Wound Journal
- Ad hoc grant reviewer
    - Physician's services incorporated foundation (2017)

Other Activities

2016- present American Congress of Rehabilitation Medicine, Spinal Cord Injury Interdisciplinary Special Interest Group
- Secondary complication task force
- Women's health task force

2016 Taiwan Physical Therapy Association, Collection of Rehabilitation Functional Assessment Tools task force

OTHER PROFESSIONAL ACTIVITIES

2012 **Mentee,** Enhancing Rehabilitation Research in the South Grant Writing Workshop, National Institute of Health

2014 **Mentee,** Association of Specialty Professor Workshop on Wound Repair and Healing in Older Adults, National Institute on Aging

2016 **Panel Moderator**, American Congress of Rehabilitation Medicine, Early Career Development Workshop

PUBLICATIONS (in chronological order)

1. **Tzen YT**, Brienza DM, Karg P, Loughlin P (2010). Effect of local cooling on sacral skin perfusion response to pressure: implications for pressure ulcer prevention. Journal of Tissue Viability,19,3,86-97.
2. Lachenbruch C, **Tzen YT**, Brienza DM, Karg P, Lachenbruch PA (2013). The relative contribution of interface pressure, shear stress, and temperature on tissue ischemia: a cross-sectional pilot study. Ostomy Wound Management, 59,3,25-34.
3. Solovyev A, Mi Q, **Tzen YT**, Breizna DM, Vodovotz Y (2013). Hybrid Equation- / Agent-based model of ischemia-induced hyperemia and pressure ulcer formation predicts

greater propensity to ulcerate in subjects with spinal cord injury. PLos Comput Biol, 9,5,e1003070.

4. **Tzen YT**, Brienza DM, Karg P, Loughin P (2013). Effectiveness of local cooling for enhancing tissue ischemia tolerance in people with spinal cord injury. Journal of Spinal Cord Medicine, 36,4,357-64.
5. Lachenbruch C, **Tzen YT,** Brienza DM, Karg PE, Lachenbruch PA (2015). Relative contributions of interface pressure, shear stress, and temperature on ischemic-induced skin-reactive hyperemia in healthy volunteers: a repeated measures laboratory study. Ostomy Wound Management, 61,2,16-25.
6. Krishnan S, Brick R, Karg PE, **Tzen YT**, Garber SL, Sowa G, Brienza DM (2016). Predictive validity of the spinal cord injury pressure ulcer scale (SCIPUS) in acute care and inpatient rehabilitation following traumatic spinal cord injury. NeuroRehabilitation, 38,4,401-9.
7. **Tzen YT**, Weinheimer-Haus EM, Corbiere TF, Koh TJ (2018). Increase skin blood flow during low intensity vibration in human participants: analysis of control mechanisms using short-time Fourier transform. PLoS ONE, 13(7): e0200247.

PATENT

1. Brienza DM, Karg PE, Smeresky, D, **Tzen YT**. Temperature regulating footwear. (WO/2017/062636)

CONFERENCE PROCEEDINGS

1. **Tzen YT**, Jan YK, Brienza DM (2008). *Development of a system to study the effect of local cooling on skin blood flow response to interface pressure*. Proceedings of the RESNA 31st International Conference on Technology and Disability. Washington, DC: RESNA Press.
2. **Tzen YT**, Jan YK, Porach EA, Karg PE, Brienza DM (2009). *Effects of local cooling on sacral skin perfusion response to pressure: implications for pressure ulcer prevention*. Proceedings of the National Pressure Ulcer Advisory Panel Biennial Conference. Washington, DC: NPUAP Press.
3. **Tzen YT**, Loughlin PJ, Brienza DM (2009). *Analyzing the mechanisms of local cooling on pressure induced reactive hyperemia by applying short-time Fourier transform (STFT)*. Proceedings of the RESNA 32nd International Conference on Technology and Disability. New Orleans, LA: RESNA Press.
4. Glauser K, **Tzen YT**, Brienza DM (2009). *Pressure ulcer prevention: examining the relative effects of pressure, shear force, and skin temperature*. Proceedings of the University of Pittsburgh Science 2009 Annual Conference. Pittsburgh, PA.
5. **Tzen YT**, Brienza DM, Karg PE, Loughlin PJ, Geyer MJ (2010). *Effectiveness of local fast and slow cooling on pressure induced reactive hyperemia (RH) in adult human participants*. Proceedings of the RESNA 33rd International Conference on Technology and Disability. Las Vegas, NV: RESNA Press.

6. **Tzen YT**, Brienza DM, Karg PE, Loughlin PJ, Geyer MJ (2011). *Effectiveness of local cooling on enhancing tissue ischemia tolerance in people with spinal cord injury*. Proceedings of the National Pressure Ulcer Advisory Panel Biennial Conference. Las Vegas, NV: NPUAP Press.

7. **Tzen YT**, Brienza, DM, Karg PE (2011). *Effects of sensation and autonomic function on reactive hyperemia following pressure with and without cooling in people with spinal cord injury*. International Conference of Spinal Cord Medicine and Rehabilitation. Washington, DC: ISCoS/ASIA Press.

8. **Tzen YT**, Brienza DM, Lachenbruch C, Karg PE (2012). *Relative contribution of pressure, temperature and shear force on ischemia induced skin blood flow response*. Proceedings of the European Pressure Ulcer Advisory Panel Focus Meeting. Tel Aviv, Israel: EPUAP Press.

9. Lachenbruch C, **Tzen YT**, Brienza DM, Karg PE, Lachenbruch PA (2013). *Relative effect of pressure, temperature, shear on non-damaging tissue ischemia*. Proceedings of the International Seating Symposium. Nashville, TN: ISS Press.

10. **Tzen YT**, Brienza DM, Karg PE (2015). Implementing temperature control on support surface: a real-world seating test protocol on people with spinal cord injury. Proceedings of the National Pressure Ulcer Advisory Panel Biennial Conference. Orlando, FL: NPUAP Press.

11. **Tzen YT**, Brienza DM, Karg PE (2016). Positive effects of local cooling on ischial skin ischemia during normal seating in people with SCI. Proceedings of the American Congress of Rehabilitation Medicine conference. Chicago, IL: ACRM Press.

12. **Tzen YT,** Weinheimer-Haus E, Corbierre T, Koh T (2016). Effectiveness of low intensity vibration on skin blood flow response: implication for wound healing. Proceedings of the American Congress of Rehabilitation Medicine conference. Chicago, IL: ACRM Press.

13. Rao V, **Tzen YT** (2017). The relationship between microcirculation, autonomic function and sacral pressure injury history in people with chronic spinal cord injury. Proceedings of the National Pressure Ulcer Advisory Panel Biennial Conference. New Orleans, LA: NPUAP Press.

14. **Tzen YT**, Kataria A, Rao V, Joseph K, Lee R, Dysico G (2018). Microcirculatory biomarker for pressure injury risk in acute spinal cord injury (SCI) patients. Proceedings of the National Pressure Ulcer Advisory Panel Annual Conference. Las Vegas, NV: NPUAP Press.

15. Purohit RM, Mei S, Kataria A, **Tzen YT** (2018). Assessing alternating pressure overlay on skin blood flow and interface pressure: a feasibility study on people with spinal cord injury (SCI). Proceedings of the National Pressure Ulcer Advisory Panel Annual Conference. Las Vegas, NV: NPUAP Press.