

NUPOC NEWS

*The official newsletter of the
Northwestern University Prosthetics-Orthotics Center*



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Student Success

This summer, NUPOC is hosting students participating in research and internship projects across prosthetics, orthotics, and rehab science.

Dhivija Challa, a rising senior at the Illinois Mathematics and Science Academy (IMSA), is investigating how prosthetic foot-ankle stiffness impacts walking performance in users of transfemoral prostheses under the mentorship of **Dr. Steven Gard. Thomas Surridge**, an undergraduate from Northwestern's Mechanical Engineering Department, is also working with our team under **Dr. Matthew Major**.

Dr. Russell Johnson is mentoring three students: **Ria Bakshi** (IMSA), who is investigating knee joint health post-stroke; **Alexis Kalamaris** (University of Tennessee), exploring shoulder health in users of upper limb prostheses; and **Jane Franz** (University of Tennessee), researching muscle coordination post-stroke.

Looking ahead, **Anastasia Nagenrauft**, a biomimetics student from the University of Applied Sciences in Bremen, Germany, will join NUPOC for a six-month internship beginning in September.

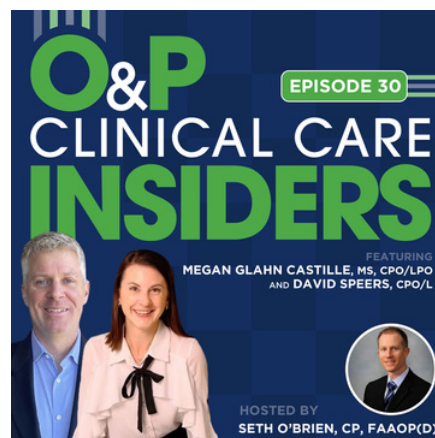
Faculty & Staff Achievements

We're proud to celebrate recent successes across the NUPOC community:

- **Michael Jenz** received one of the Top 3 Best Poster awards at the ME Undergrad/Graduate Research Symposium for his project “Design and Control of an Actuated Prosthetic Elbow to Restore Arm Swing for Persons with Upper Limb Absence.” He also earned the top honor among undergraduate presenters — congratulations, Michael! Michael’s research advisor is **Matthew Major, PhD**.
- **Dr. Matthew Major** was honored as a 2024 Associate Editor of the Year by the ASME Journal of Biomechanical Engineering.
- **David Speers, CPO/L** was recently featured on the Clinical Care Insiders podcast, recorded live at AAOP 2025. In the episode, he joined Megan Glahn Castille, CPO/LPO, to discuss the psychosocial impact of scoliosis and how clinicians can support patients with empathy, empowerment, and education. Listen to it here: <https://aaopinsiders.podbean.com/e/addressing-the-psychosocial-impact-of-scoliosis/>

Recent Publications

- [Major, M.J. Coupling the Interface: Where Research Meets Reality. JPO. July 2025. DOI: 10.1097/JPO.0000000000000568](#)
- [Hoegberg Z., Donahue S., Major M.J. An Open-Source Wearable System for Real-Time Human Biomechanical Analysis. Sensors, 2025. DOI: 10.3390/s25092931](#)
- [Monteiro A.S., Major M.J., Fey N.P. Transtibial limb loss influences muscle excitation... Clinical Biomechanics, Apr 2025. PMID: 40306240](#)
- [Kim M., Major M.J. Robotic exoskeleton adapts to changes in leg movements in real time. Nature, Nov 2024. PMID: 39537880](#)



David Speers, CPO/L featured in O&P Clinical Care Insiders, Episode 30

Journal Club

We were honored to welcome **Dr. Sujatha Srinivasan** to NUPOC in May as our featured Journal Club speaker!

Dr. Srinivasan, a professor at IIT Madras and Honorary Professor at University College London, shared her innovative work in assistive technology and rehabilitation engineering. Her talk, Innovation for Inclusion, highlighted groundbreaking devices developed by R2D2 at IIT Madras, ranging from standing wheelchairs and terrain-adaptive prosthetic knees to hand rehabilitation robotics. She also introduced the mission of the National Center for Assistive Health Technologies (NCAHT-IITM) and shared powerful insights into accessible design and collaborative models that drive impact. Thank you, Dr. Srinivasan, for your inspiring presentation and for the important work you lead in advancing inclusive mobility solutions!



From left to right: **Dr. Sujatha Srinivasan**; **Matthew J. Major, PhD**, Associate Professor of Physical Medicine and Rehabilitation and McCormick School of Engineering; **Sudeesh Subramanian, PhD**, Postdoctoral Scholar (NUPOC); **Steven A. Gard, PhD**, Executive Director, Northwestern University Prosthetics-Orthotics Center (NUPOC); Associate Professor of Physical Medicine and Rehabilitation and McCormick School of Engineering

ISPO Stockholm, Sweden I

June 16–19, 2025

The International Society for Prosthetics and Orthotics (ISPO) hosts its flagship World Congress every two years, bringing together global leaders in prosthetics, orthotics, mobility, and assistive technology. The 2025 Congress in Stockholm showcased innovation, research, and collaboration, and NUPOC was proud to have strong representation from our faculty in presentations, instructional courses, and leadership appointments.

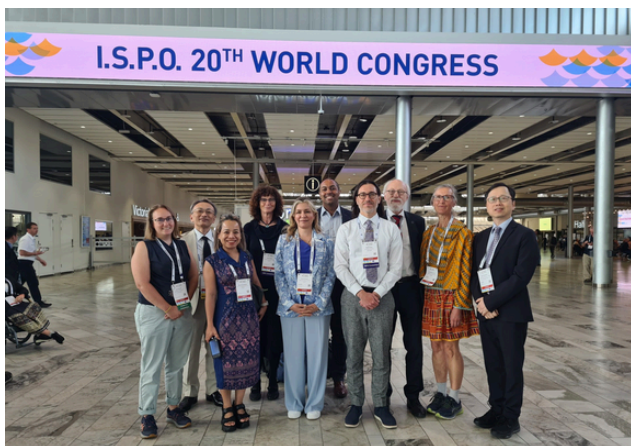
NUPOC Highlights

Instructional Courses:

- Revolutionizing P&O Practice and Education: Artificial Intelligence & Large Language Models for Clinicians and Educators which included **John Brinkmann**, **Bryan Malas**, **Mindy Thorpe**, and **Michael Cavanaugh**. This session explored how AI tools and large language models are transforming both clinical workflows and educational practices within the P&O field.

Leadership & Recognition

- **Matthew Major, PhD** assumed a two-year role as Chair of the ISPO Scientific Committee.
- **Bryan Malas, MHPE, CO** began his tenure as President-Elect of ISPO.



From left to right: **Alix Chadwell**, **Kengo Onishi**, **Manunchaya Samala**, **Helena Burger**, **Arezo Eshraghi**, **Cleveland Barnett**, **Matty Major**, **Dick Plettenburg**, **Ulla Hellstrand Tang**, **MS Wong**



From left to right: **Kyle Leister** (MPO 2015), **Michael L. Cavanaugh**, MSHI, CPO, **Bryan S. Malas**, MHPE, CO, **Melinda C. Thorpe**, MS-IDS, CPO, and **Andrea Ikeda** (Certificate in Prosthetics, Spring 2004), now a research prosthetist at the Shirley Ryan AbilityLab.

ISPO Continued

Lectures & Presentations:

- Grading, Assessment, and Competency: Transitioning from School to Practice, **John Brinkmann**
- Teaching and Assessment Methods to Increase Student Engagement and Performance in an Online Course, **Mindy Thorpe**
- The Effect of Passive Mechanical Prosthetic Knee and Ankle-Foot Components on Gait Safety in Transfemoral Prosthesis Users, **Steven A. Gard, Miguel Vaca, Rebecca Stine, Matthew Major**
- Occupational Realignment of the Prosthetics/Orthotics Profession: An ISPO Working Partnership with the International Labour Organization and World Health Organization, **Bryan S Malas**
- Symposium | 2.05 Your ISPO Scientific Committee: Serving the Research, Development and Knowledge Translation Needs of the Global ISPO Membership, **Matthew Major, Arezoo Eshraghi, Kengo Ohnishi, Alix Chadwell, Cleveland Barnett, Ulla Hellstrand Tang, Manunchaya Samala, Dick Plettenburg, Helena Burger**
- Distinctive Relationships Between Dynamic Balance During Gait and Clinical Outcomes for Elderly Individuals With and Without Transtibial Amputation, **Arianna Monteiro, Nicholas Fey, Matthew Major**
- A Data-Driven Shape Optimization Approach for Designing Prosthetic Feet According to Desired Keel Stiffness, **Ethan Boris, Matthew Major, Wei Chen**
- Mechanical Characterization of a Stiffness-Adjustable Carbon Fiber Dynamic Ankle-Foot Orthosis Strut, **Christopher Hong, Marcos Chavez, Brian Moyer, Duke Loke, Will Pieper, Matthew Major**
- Analysis of Bone Mechanostimulation During Gait Using a Subischial Socket, **Jose Zavaleta-Ruiz, Stefania Fatone, Matthew Major, Pankaj Pankaj**
- Elevated Vacuum Integrated System (ELVIS): An Electro-Mechanical Pump for Vacuum-Assisted Suspension of Prosthetic Sockets, **Matthew Major, Paul Hammond II, Ryan Caldwell, Gregory Voss, Stuart Fairhurst, Andrew Hansen**
- Identification of Gait Cadence and Phase from a Single Upper Arm Mounted Accelerometer, **Zachary Hoegberg, Lily Centra, Matthew Elwin, Matthew Major**



Mindy Thorpe speaking at ISPO



Michael Cavanaugh speaking at ISPO

MPO 2027 Orientation

NUPOC welcomed the **Masters of Prosthetics and Orthotics Class of 2027** with a two-day orientation focused on engagement, connection, and preparation. Students were introduced to faculty and staff, explored the NUPOC facilities, and learned about academic expectations and student resources. Highlights included team-building activities, a downtown campus tour, peer mentoring sessions, and a lively welcome reception. The event concluded with students receiving their iPads and backpacks—ready to embark on their academic journey at NUPOC.



MPO 27 students at the orientation reception



MPO 26 and MPO 27 on the NUPOSS scavenger hunt



MPO 27 students engaging in ice breakers



MPO 27 students playing common threads



MPO 27 students at the orientation reception

NUPOC Open House

Are you or someone you know considering a career that blends healthcare, technology, and patient care? Join us for the NUPOC Open House to explore the dynamic and rewarding field of prosthetics and orthotics. Hosted by the Northwestern University Prosthetics-Orthotics Center (NUPOC), this event is a great opportunity to learn more about our Masters of Prosthetics and Orthotics (MPO) and Masters of Prosthetics and Orthotics – Research (MPO-R) programs.

Attendees will tour our state-of-the-art facility, meet our faculty, and learn what sets NUPOC's curriculum, clinical training, and research opportunities apart. Whether you're early in your exploration or ready to apply, this event will help you gain insight into the profession and our admissions process.

The Open House will take place on Friday, July 25, 2025, from 1:00 to 3:30 PM at the Northwestern University Prosthetics-Orthotics Center, located at:

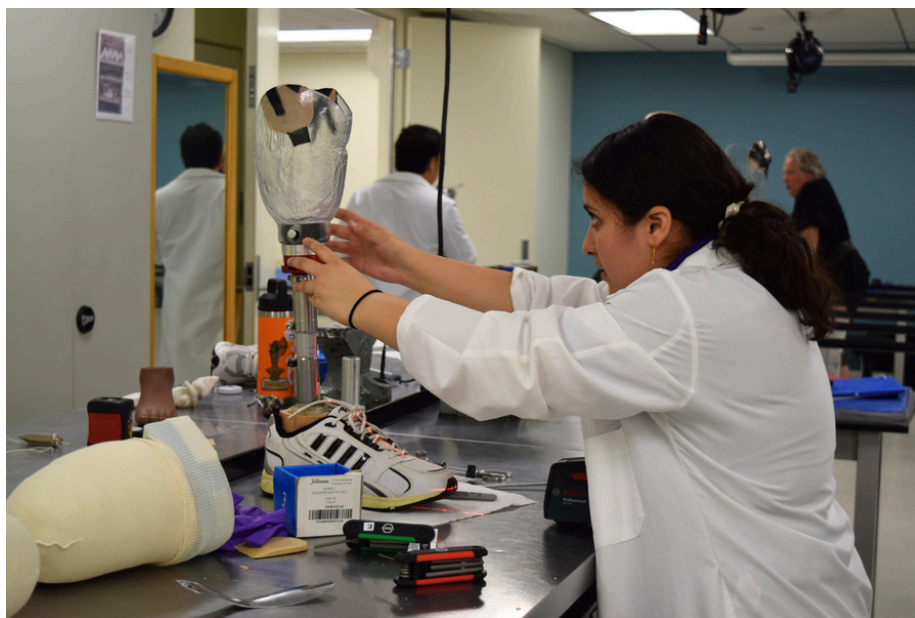
680 N. Lake Shore Drive

Suite 1100

Chicago, IL 60611

We hope to see you there as you take the next step toward your future in O&P.

[Click here to register.](#)



Pictured: **Maria Gamez** in Lower Limb Prosthetics Class



Giving Opportunities

Donor support is essential to our continued success.

Your gift can help support emerging researchers, P&O clinicians, and programs that will improve the lives of people who live with amputation or other physical impairments.

Contribute [online](#). Or contact FSM Development (T: 312-503-2706)

NUPOC appreciates your generosity!

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