

SPRING/SUMMER 2020

UNIVERSITY OF PITTSBURGH
FACETS
SCHOOL OF HEALTH AND REHABILITATION SCIENCES

RESEARCH SUCCESS =
PATIENT SUCCESS

RISKY BUSINESS:
DEVELOPING TECHNOLOGY
TO ASSESS INJURY RISK

TURNING IDEAS INTO
IMPACTFUL SOLUTIONS



FORGE AHEAD:
RESEARCH AND TECHNOLOGY
IN A NEW DECADE

FACETS SCHOOL OF HEALTH AND REHABILITATION SCIENCES

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SPRING/SUMMER 2020



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FROM THE DEAN



Greetings,

As dean of the School of Health and Rehabilitation Sciences, I am consistently reminded that our school's achievements in innovation, due to the efforts of our faculty, staff and students, place us among Pitt's leaders. We're bold, courageous, inventive, forward-thinking and always up for a challenge. Indeed, we're a powerhouse of innovation, particularly in our departments that are technology driven. The Department of Rehabilitation Science and Technology (RST) and the Human Engineering Research Laboratories (HERL), for example, are particularly well-suited as innovation leaders and their accomplishments have been formidable.

Our strategy of late is to spread the innovation bug more widely across the school. You'll see many examples of this showcased throughout these pages. One major initiative of Dr. David Brienza, associate dean for Technology and Innovation, is to accelerate the pace of innovation throughout SHRS. Dave has partnered with Pitt's Innovation Institute to create the SHRS Innovation Challenge, our first ever in this space. Faculty, staff and students will compete for funds to assist with the commercial translation of technology.

The challenge is a multi-step process involving an educational program and development activities. Historically, SHRS entries into the University-level innovation competitions have ranked high, receiving "challenge grants" and other funding to move our innovations and technology forward. I'm eager to see how creative our students, faculty and staff will be in this schoolwide venture. So, more to come as we strive to accelerate the pace of innovation in health and rehabilitation.

In closing, I would be remiss if I didn't mention the school's 50th anniversary which we've been recognizing. I find that, not only has this been a time of great personal and team reflection on where we've been and what we've accomplished, it's also been a time of planning for the future. Over the spring and summer months, we will be reviewing our current strategic plan in order to update and revise it for the next five years. We will be mindful of the needs of our students, faculty, staff, alumni, donors and the greater community as we structure our goals. If you would like to provide input or suggestions on the school's direction, I always welcome your thoughts.

Anthony Delitto

Anthony Delitto
Professor and Dean

The rising cost of tuition these days is often daunting for students ... especially for those with limited financial resources seeking to establish careers promising moderate salaries. For most SHRS students, any financial assistance is welcome and vigilantly sought. We are grateful for our many alumni and friends who have chosen to support our students by establishing awards and scholarships.

If you would like to learn more about creating a scholarship award in SHRS or any of its departments and programs, please call the SHRS Development Office at 412-383-4084.

2019-2020 SHRS SCHOLARSHIP AND AWARD RECIPIENTS

Joyce and Andrew J. Kuzneski Jr. Student Resource Award
(school-wide)
Ian Kemmerling
Brady Mellinger

Anne Pascasio Scholarship
(school-wide)
Emma Galecki
Alec Hoover
Gabiella Mazzeo

Dr. Timothy C. and Mrs. Cynthia B. Sell Student Award
(school-wide)
Abigail Fortunato
Nichelle Llewellyn
Kelly Prangle
Grant Traeger

SHRS Alumni Endowed Scholarship
(school-wide)
Stephanie Caggiano
Alaina Graziano
Megan McKenzie
Ryan Michaels
Tiffany Okerman

UPMC Endowed Scholarship
(school-wide)
Nanno Dandi
Kara Kaniecki
Katherine Legatzke
Nicole Mikologic
Anna Shaw
Natalie Stadler

Mildred L. Wood SHRS Endowed Student Resource Award
(school-wide)
Jennifer Condio
Katherine Grunewald
Danielle Hall
Karen Miller
Kathryn Schuetz
Emily Shannon

Emeritus Award *(CSD)*
Lauren Cierniecki
Alyssa Kelly

Audrey Holland Endowed Student Resource Award *(CSD)*
Christina Dastolfo-Hromak
Azure Wilson
Leslie Zhen

Lisa Levy Memorial Award *(CSD)*
Erin Casey
Caitlyn Zaya

Walt A. Stoy Award for Scholarly Activity *(EM)*
Cassandra Crouse
Catherine Kim

Emergency Medicine Program Award *(EM)*
Taylor M. Dallas
Jordan E. Smith

Denise A. Dunyak Student Award *(HIM)*
Rebecca Boland

Laurine M. Johnson Endowed Student Resource Award *(HIM)*
Julia Przybos

Gerrilyne “Gerri” Siren Walk Memorial Student Award *(HIM)*
Katelyn McGuire
Junwei Yue

Meagan Sampogna Williams Student Resource Award *(HIM)*
Alyssa Dugan

Cindy Zak Student Resource Award *(HIM)*
Annlyn Van Eman

Caroline Robinson Brayley Student Enrichment Award *(OT)*
Michelle Beck

Department of Occupational Therapy Award of Professional Excellence *(OT)*
Monica Morrison

Joan Rogers Student Resource Award *(OT)*
Haley Feller

Dorothy Bradley Brown Scholarship *(PT)*
Allyn Bove
Alexandra Dubnansky
Ashley Saxe

Mary Behling Browne Scholarship *(PT)*
Kaitlyn Colgan

Robert and Mercedes Chase Scholarship in Physical Therapy
Daniella Woiski

Pat Croce Endowed Student Scholarship *(PT)*
Julianna Mori
Stephanie Taylor

Mary K. Daly-Crum Student Award *(PT)*
Malena Lennon

David Physical Therapy and Sports Medicine Center/Joseph M. David Endowed Scholarship *(PT)*
Haley Cozad
Joe Dietrich

Anthony Delitto Scholarship *(PT)*
Sebastian Fearon
Ron Reznichky

Victoria Green Memorial Student Award *(PT)*
Tyan Kan

Pearl Cricco Mann Scholarship *(PT)*
Joshua Brain
Marie Pelner

Alice Chagnot Oulette Endowment Award *(PT)*
Molly Rajewski

PT Class of 2009 Student Award *(PT)*
Keri Tkatch

PT Leadership Development Award *(PT)*
Mariah Callas

Paul and Judy Rockar Scholarship *(PT)*
Jordan Cargile
Aaron McCullough

D.T. Watson Alumni Scholarship *(PT)*
Neema Desai
Kacey Mikuteit

Rory A. Cooper and Dion Johnson Student Award *(RST)*
Jenna Freedman

Todd Hargroder Endowed Internship Award *(RST)*
Joseph Ott

Thomas J. O’Connor Award *(RST)*
Hailee Kulich

Shimada Student Award *(RST)*
Michael Huang

Virginia Kaufman Scholarship *(RST)*
Satria Ardianuari
Gabriel G. Burklund
Lauren L. Casertano
Taylor Dallas
Mack Devin
William C. Eddy
Claire Gallagher
Ashley Griffin
Megan Hrit
Cecelia R. Lee-Hauser
Eugene Lin
Adrianna Lopaczynski
Andrew Lucas
Saralyn Ostrowski
Brianna Perry
Kevin C. Quinn
Lisa A. Richardson
Emily G. Shannon
Jessica Rose Sider
Nicholas S. Sposito
Grishma Thakrar
Sophia Thompson
Olivia G. Tuck
Geoffrey D. Webb
Nolan R. Wilson
Farzana Zafar

Jill Conley Memorial Award *(SMN)*
Lauren Betts

Dr. Freddie H. Fu Undergraduate Athletic Training Scholarship *(SMN)*
Allison Ross
Jennifer DeFazio
Maddy Mahonski
Kaitlyn Sweeney

Tim Kerin Memorial Scholarship in Athletic Training *(SMN)*
Devon Trieschock

David H. Perrin Student Award *(SMN)*
Brandon Gallimore

Sports Medicine Student Resource Award *(SMN)*
Rob Colombi



“Perspective” is written by Patty Kummick, FACETS executive editor and SHRS executive director of Internal and External Relations. This column serves to address topics relating to our students, faculty, staff, the school, and local and global communities.

Please indulge me while I talk about dogs. I love dogs. I’m amazed at the remarkable relationships they can have with humans. Their antics crack me up. They have distinct personalities. I enjoy watching them at play and at rest. At SHRS, I’m able to observe dogs ... service dogs ... at work.

To my great joy, SHRS has introduced a new “service” for students, faculty and staff that puts a smile on more faces than just mine. SHRS welcomes, on a regularly scheduled basis during the academic term, C.C., the SHRS therapy dog! C.C. and her owner, Caroline Passerrello, an instructor in our Dietician Nutritionist program, are a pet therapy team and they positively impact so many of us at SHRS.

C.C. generates a calming atmosphere and is receptive to the stressed-out student, the harried staff member, the multi-tasking professor. When C.C.’s visiting, people (including me!) seek her out.

I mention C.C. and the pet therapy program for a couple reasons. First, C.C.’s story is dichotomous to many of the feature articles in this issue of FACETS. We talk about Innovation and Technology. We highlight creative genius among our students and faculty who are constantly encouraged to be inventive and productive in the classrooms and the labs. We recognize over-achievers and perfectionists in their fields. Then there’s C.C. There’s nothing complicated about her. She doesn’t perform spectacular tricks (although I bet she could!). She’s not demanding or judgmental. Instead, she provides some of the most basic needs—comfort, playfulness, an often much-needed calming effect in a usually hectic and challenging environment. Her abilities, though, deserve a little attention, much like the subjects in these magazine articles, because of her impact on so many.



Dietitian Nutritionist program student Christy Bender and C.C.

Secondly, as the School of Health and Rehabilitation Sciences, we are all in tune with the value of rehab and therapies and well-being. We study these. We conduct related research. We create technologies with the expectation that our work will benefit the masses. Then there’s C.C. She’s an expert at “therapy.” And it’s as simple and basic as rolling over to let a stranger rub her belly. Or offering a paw or a wet nose. What she does is elemental yet so appreciated by those who spend time with her.

C.C. provides what we hope our students will offer—just like so many of YOU do—as they administer compassionate and caring services and therapy to their patients and clients.

Thanks to Caroline for sharing C.C. with us and thanks to SHRS leadership for allowing her to grace our halls!

To comment or share your insights on this column, please contact Patty Kummick at pkummick@pitt.edu, 412-383-6548, SHRS, 4054 Forbes Tower, Pittsburgh, PA 15260.



Alumni News



In November, SHRS hosted its first international alumni event in Dubai, UAE. Hosts **Dr. Valerie Watzlaf**, HIM associate professor (back row, right), and **Patty Kummick**, SHRS Internal and External Relations executive director (back row, left), were joined by alumnae **Fatemah Al Ghadheeb** (HIM '13), **Zainab Lajami** (PT '14) and **Dr. Zahra Alakrawi** (HIM '17) (front row, left to right), and **Amal Nemangani** (HIM '08) (back row, center left) and **Dr. Haya Alkhatlan** (HIM '10) (back row, center right).

Athletic Training/Sports Medicine



Rick Burkholder (BS '87), Kansas City Chiefs vice president of Sports Medicine and Performance, along with his athletic training team, helped lead the NFL team to a Super-winning 2019-2020 season.



Regina Stump (MS '17) received an assistantship through the National Strength and Conditioning Association Foundation. She will complete her training at Fort Carson, Colo.

Christie-Lee (Miller) Coad, (MS '10), center, provided health care services as an athletic trainer with USA Track & Field at the 2019 IAAF World Athletics Championships in Doha, Qatar.



Mike Powell (MS '17) was named one of the Professional Baseball Athletic Trainers Society's 2019 Minor League Athletic Trainers of the Year.

Communication Science and Disorders



Dr. Julie Haarbauer-Krupa (MA '80) became a fellow of the American Congress of Rehabilitation Medicine. She serves as a senior health scientist on the Traumatic Brain Injury Team at the CDC's National Center for Injury Prevention and Control.

Dr. O'neil Guthrie (PhD '06) was elected to the American Auditory Society Board.

Dr. Christine Matthews (CScD '10) was recently named chief of Audiology and Speech Pathology service at the VA Pittsburgh Healthcare System. She carries responsibilities for the strategic direction and oversight of the clinical, educational and research activities of the integrated Audiology and Speech Pathology Program.



Audiology alumnae **Nicole Schuller** (AuD '15) and **Anna Wickline** (AuD '18) were chosen as part of a group of seven young professionals to participate in Future Leader training in Ohio.



Dr. Audrey Holland, (BS '55, MS '59, PhD '61), left, recently visited the VA Pittsburgh Healthcare System to meet with stroke survivors with aphasia, caregivers, professionals and students during a World Stroke Day event on October 31, 2019, hosted by the Veterans Research Foundation of Pittsburgh. She also visited the CSD

Department graduate students in Assistant Professor Will Evans' class. Dr. Holland is a strong supporter of research in CSD; the Audrey Holland Endowed Award was previously established in her name to support student research through the CSD Department.

Emergency Medicine

John Mooney (BS '13) paramedic crew chief and Cardiac Care Team member, City of Pittsburgh Bureau of EMS, played a role in the Bureau receiving the American Heart Association's 2019 Mission: Lifeline EMS Gold Plus Performance Achievement Award. The honor recognizes the critical life-saving role of EMS in providing care to patients suffering from an acute myocardial infarction.

Health Information Management

Dr. Eiman Al-Jafar (MS '97, PhD '02) presented on ethical issues when using artificial intelligence at the GCC eHealth Workforce Development Conference in Dubai, UAE. She currently serves as president of the Kuwait Health Informatics Association and was the first doctoral graduate from HIM with an emphasis in Health Information Systems.

Nutrition and Dietetics

Ka Hei Karen Lau (CMD '10) is an author on the "2019 American Diabetes Association's Nutrition Therapy for Adults with Diabetes or Prediabetes: A Consensus Report."

Occupational Therapy

Benjamin Gross (MOT '10) was elected vice chair of the American Occupational Therapy Association's Affiliated State Association Presidents (ASAP). The ASAP is composed of state association presidents who are elected by their members.

Physical Therapy

Nicole LeVan-Rubida (DPT '07) was awarded designation of board-certified clinical specialist in neurologic physical therapy and was promoted to clinical supervisor of Outpatient Rehabilitation Services at The Reading Hospital – Tower Health, Reading, Pa.

Physician Assistant Studies



Janelle Porter (MS '12) is the first recipient of the PA Studies Outstanding Alumni Award honoring those who have excelled in service to the PA profession or to their communities.



Kevin Luong (MS '11) received a National Institute on Drug Abuse Mentored Outreach Award from the Physician Assistant Foundation. The project will combine academic and clinical expertise as Luong teams with PAS Department Chair David Beck and UPMC Chief

Advanced Practice Provider Officer Ben Reynolds to improve the treatment of substance use disorders across the UPMC health system.

Rehabilitation Science and Technology



Dr. Jeanne Zanca (MPT '02, PhD '06) became a fellow of the American Congress of Rehabilitation Medicine. She is a senior research scientist, Spinal Cord Injury Research, Kessler Foundation; and research associate professor, Rutgers New Jersey Medical School.



Faculty News



Athletic Training/ Sports Medicine

Dr. Bradley Nindl, professor and NMRL director, presented a series of five lectures over five days at Texas universities in October 2019. He was invited to speak by the Texas Chapter of the American College of Sports Medicine. He highlighted his research addressing military human performance optimization and insulin-like growth factor-1 as a biomarker for fitness and health outcomes.

Communication Science and Disorders

Dr. Bernard Rousseau, professor and chair, was appointed to a three-year term on the American Speech-Language-Hearing Foundation Board of Trustees. The foundation is governed by a Board of Trustees whose members are appointed by the Board of Directors of the American Speech-Language-Hearing Association (ASHA) as well as the CEO of ASHA and the executive director of the foundation.

Dr. Erin Lundblom, associate professor, was elected to serve as vice president of Convention Planning & Program as a member of the Pennsylvania Speech-Language-Hearing Association (PSHA)'s Executive Board. Her VP responsibilities span the 2020 and 2021 conferences.

Dr. Will Evans, assistant professor, was a member of the team named a Pitt Innovation Challenge finalist for their "Aphasia Games for Health" submission. With their award, the team is developing and prototyping this card-based treatment game for people with aphasia to use in

person or remotely through video conferencing software to improve language and fight social isolation.

Dr. Bharath Chandrasekaran, professor, was the keynote speaker of the department's 21st Annual Jack Matthews-Herbert Rubin Lecture at Pitt. His talk focused on the neuroscience of speech perception.

Associate Professor **Michael Walsh Dickey** presented on predictors of aphasia treatment at the Centre for Clinical Research Excellence in Aphasia Rehabilitation and Recovery. The presentation was live casted across Australia.

Dr. Lea Sayce, research assistant professor, was a guest speaker at the American Association for Laboratory Animal Science – Three Rivers Branch and delivered a lecture on "Surgical Modeling of Voice Disorders" based on the NIH-funded work being performed in the Laryngeal Biology Laboratory.

Dr. Catherine Palmer, professor, and her team of investigators including Associate Professors **Elaine Morner** (CSD) and **Natalie Leland** (OT) and Professor **Charity Patterson** (PT), received a \$2.23 million award from Patient-Centered Outcomes Research Institute (PCORI) for their project, HearCARE: Hearing and Communication Assistance for Resident Engagement. The researchers are examining better ways for older adults to receive hearing assistance in senior living communities.

Dr. Palmer was also invited to speak on practice management at the American Academy of Audiology conference in Waikoloa, Hawaii.

Dr. Leah Helou, assistant professor, won first place in the Pitt Ventures First Gear pitch competition.

Dr. Helou's "Vocal Mirror" project involves creating a web-based service platform where speakers can get feedback from listeners about how they come across when they talk. Dr. Helou will use the funds to develop the website prototype, which will support research and development with collaborators including **Drs. Chris Brown**, CSD associate professor, and **Jason Bohland**, CSD assistant professor.

Emergency Medicine Program

Dr. Tom Platt, program director and associate professor, was elected to the National Association of Emergency Medical Technicians Board as Region I director.

Occupational Therapy

Associate Professor **Joanne Baird** presented at the American Occupational Therapy Association Education Summit in Fort Worth, Texas, and at the International Meeting on Simulation in Healthcare (IMSH) in San Diego, Calif.

Associate Professor **Roxanna Bendixen** presented at the 24th International Annual Congress of the World Muscle Society in Copenhagen, Denmark.

Instructor **Cara Lekovitch** achieved Board Certification in Gerontology through the American Occupational Therapy Association.

Associate Professor **Natalie Leland** presented a webinar to address fall prevention for the American Orthopaedic Association as part of their "Own the Bone" initiative. She was also invited to participate on the Centers for Medicare and Medicaid Services Unified Post-Acute Care Prospective Payment System expert panel.

Dr. Leland presented at the joint American Health Care Association and National Association for the Support of Long Term Care Rehabilitation Symposium and at the American Occupational Therapy Association 2019 Home Health Payment-Driven Groupings Model Specialty Conference.

Assistant Professor **Amit Sethi** received the 2019 Pennsylvania Occupational Therapy Association Research Award for advancing occupational therapy research in neurorehabilitation.

Professor and Chair **Beth Skidmore** presented the keynote lecture on "Community Participation: Occupational Therapy's Role in Community Health and Well-Being" at the Singapore National Occupational Therapy Conference. Dr. Skidmore also presented the keynote address at the Encompass Health United Together with Monumental Strength 2019 Director of Therapy Operations Annual Corporate Meeting in Washington, D.C.

Dr. Skidmore was featured on the "How to OT" podcast which was published on January 7, 2020, available at <https://anchor.fm/howtoot/episodes/Dr-Beth-Skidmore-Effectively-Implementing-Metacognitive-Strategy-Training-Interventions-ea1gfq>.

Assistant Professor **Alyson Stover** received the 2019 Pennsylvania Occupational Therapy Association Academic Educator Award for excellence in occupational therapy education and she presented a plenary session on "From Prevention to Recovery: Occupational Therapy's Vital Role in Combatting the Opioid Epidemic" at the 2019 Pennsylvania Occupational Therapy Association Annual Conference.

Numerous students, alumni and faculty presented at the 2019 American Congress of Rehabilitation Medicine Annual Conference in Chicago, Ill. Presenters included PhD students (**Rachelle Brick** and **Alex Harper**), alumni (**Emily Kringle**, **Chao-Yi Wu** and **Asari Yahata**) and faculty (**Cara Lekovitch**, **Dr. Natalie Leland**, **Dr. Beth Skidmore** and **Dr. Lauren Terhorst**).

Physical Therapy



Dr. Andrea Hergenroeder, associate professor, received the 2020 Academy of Acute Care Physical Therapy Educator Award. The award recognizes a member of the Academy of Acute Care Physical Therapy who has exhibited outstanding leadership through their career as demonstrated by contributions to acute physical therapy education in at least three of the following areas: scholarship, teaching and administration or service.

Dr. Hergenroeder also received the SHRS Dean's Distinguished Teaching Award for her excellence in teaching as exemplified in part by her ability to create a student-centered learning environment where students are actively engaged, and her contemporary and innovative teaching methods.

Susan L. Whitney, professor, is the 2020 recipient of the Academy of Neurological Physical Therapy Anne Shumway-Cook lectureship. The lectureship is designed to acknowledge and honor an individual who has made significant contributions to neurologic physical therapy research and practice.

Assistant Professor **Vicki Hornyak** participated in the Collaborating Across Borders (CAB) VII interprofessional conference in Indianapolis, Ind., a joint venture between the American and Canadian Interprofessional Health Collaboratives. She co-presented three platform presentations on work highlighting the outcomes of the Interprofessional Dedicated Education Unit, a clinical experience for Pitt's students of the Health Sciences in collaboration with UPMC nurses and rehabilitation therapists.

Prosthetics and Orthotics

Dr. Goeran Fiedler, assistant professor, has been appointed as an associate editor for Prosthetics and Orthotics International.

Rehabilitation Science and Technology

Professor David Brienza served as keynote speaker at the 2nd World Conference on Advanced Treatments & Technologies in Wound Care in Dusseldorf, Germany.

Dr. Alicia Koontz, professor, was elected to the American Institute for Medical and Biological Engineering College of Fellows. She is also the editor of the open-source publisher PLOS's online Veterans Disability and Rehabilitation Research Channel.

Dr. Rory Cooper, associate dean for Inclusion, FISA/PVA distinguished professor and HERL director, was featured on the cover and in the pages of the September 2019 issue of Inventors Digest and in the short documentary video in the Freethink's "Superhuman" series. The series profiles the pioneers and patients on the front lines of medical innovation.



Student News

Members of the SHRS student organizations, through the oversight of the Student Advisory Board, planned, organized and conducted the first SHRS Collaborative Care Conference for undergraduate and graduate students. The conference, held at SHRS, featured concurrent sessions where students from all SHRS disciplines participated in case studies as well as a panel discussion including alumni engagement.

Communication Science and Disorders

PhD students **Amanda Mahoney** and **Cara Donohue** presented a poster at the Pitt Med Ed Day on development of a Massive Online Open Course (MOOC) on Computational Deglutition, a collaboration between CSD and Engineering, through which a course is being prepared on swallowing physiology and kinematic analysis, and signal processing/machine learning.



AuD students **Hannah Famili** and **Brandy Hollins** were accepted into the National Center for Rehabilitative and Auditory Research T35 training program. They will spend 12 weeks in Portland, Ore., this summer completing the intensive research program.



Audiology student **Lauren Ciemniecki** was one of five students chosen for the American Academy of

Audiology Student Research Forum. She was mentored by CSD Associate Professor **Elaine Mormer**.

Occupational Therapy

OTD students **Julia Beatty, Emily Pullman, Sam Whitney, Giulia Watkins, Katie Massarsky, Alyssa Carson** and **Katie Grunewald** participated in the 2019 School of Medicine Interprofessional Geriatric Week with over 240 students from Schools of the Health Sciences.

Anna Marie Clark, OTD student, co-presented on “Ambitious Defensible IEP Goals for Students with Greatest Needs” at the 2020 Council for Exceptional Children in Portland, Ore.

Haley Feller and **Elise Krause**, OTD students, presented at the Steel City Dental Conference on September 12, 2019. Their presentation, “Ergonomics: Providing Patient Care,” was featured at a one-day conference for 55 dental hygiene students and focused on strategies to protect one’s body in the context of care.

PhD student **Jessica Kersey** presented at the American Speech-Language-Hearing Association Annual Conference in Orlando, Fla.

OTD students **Jameson Matunas, Ashley Thompson, Spencer Sutter** and **Rachel Fleming** were selected for the Jewish Healthcare Foundation’s Jonas Salk Health Activist Fellowship.

Monica Morrison, OTD student, received a Pennsylvania Occupational Therapy Association Student Scholarship and the Department of Occupational Therapy Professional Excellence Award.

PhD student **Stephanie Rouch** (MOT ’17) was accepted to the Health Equity Certificate program in the Graduate School of Public Health.

The following OTD students were selected to be interns for the American Occupational Therapy Association Special Interest Sections: **Sara Lessem** (Rehab and Disability), **Leighann Warholak** (Work and Industry) and **Taylor Wellman** (Mental Health).

The following OTD and MOT students from the OTD Class of 2022 and MOT Class of 2021 have been inducted as members of Pi Theta Epsilon, the national honor society for occupational therapy students and alumni: **Colleen Andris, Alicia Brindle, Olivia Brooks, Hannah Brown, Anna Marie Clark, Kaylee DeCecchis, Lauren Dundore, Marissa Durbin, Rachel Eilers, Megan Graybill, Allison Leventry, Kelsey Miller, Amber Shojaie, Kayla Soltis, Spencer Sutter, Alexa Taylor, Ashley Thompson, Kristen Vilett, Caitlyn Wear** and **Julia Zezinka**.

Prosthetics and Orthotics

MSPO students **Brianna Perry** and **Kevin Quinn**, along with faculty members **Drs. Goeran Fiedler, David Brienza** and **Mary-Ann Miknevich**, were winners in the Pitt Innovation Challenge (PInCH) with their submission, Good Vibrations, to treat residual/phantom limb pain and muscle atrophy in amputees.

Department News

Athletic Training/Sports Medicine

The NMRL co-hosted the Human Performance Enhancement Research Meeting featuring sessions on military-unique situations, brain/health neurobiology, warfighter physical enhancement, precision performance enablers, and future directions. A multidisciplinary group of speakers provided insight about provocative, new research themes of human performance enhancement.



U.S. Congressman Conor Lamb (center) joined Professor Bradley Nindl and Associate Professor Kim Beals at the HPE Research meeting on Pitt's campus.

Health Information Management

HIM faculty and staff introduced SHRS’s first online courses leading to a degree. The Master of Science in Health Informatics online degree offering kicked off with 19 students in the first cohort that began in January. More SHRS online and hybrid degree programs and certificate programs are expected to be introduced over time.

Human Engineering Research Laboratories

HERL used the occasion of its 25th anniversary to host leadership of the Paralyzed Veterans of America in November 2019. Board members and leaders were treated to a dinner and lab tours.



Cancellations Due to Coronavirus Pandemic

Due to concerns over the spread of the COVID-19 virus, the nation’s restrictions on large gatherings and the University’s and School’s attempts to keep alumni, students, faculty, staff and the community safe, SHRS has cancelled its 50th Anniversary events in May.

We regret any inconvenience. We intend to reschedule our 50th Anniversary celebration at a later date where we will properly recognize our distinguished alumni. We will keep you informed as details are determined.

Alumni receptions planned in conjunction with professional association conferences have also been cancelled. We look forward to gathering with you in these settings as conferences are scheduled once again.

We wish you and your families good health and safe environments during this pandemic and salute all of you who are called to serve those in greater need.



As SHRS celebrates its 50th anniversary, it will honor a new cohort of exceptional alumni with six different awards of excellence. The largest group ever to receive these kudos, the 2020 class of awardees includes 21 men and women who consistently make the school proud. They shine in research, education, clinical practice and leadership. SHRS is better because they have been here, and the fields of health and rehabilitation are stronger because of their contributions.

DISTINGUISHED ALUMNI AWARD

This award is bestowed upon an elite group of SHRS graduates every five years. Recipients have distinguished themselves through their academic, professional and humanitarian accomplishments. We recognize their commitment to professional excellence and dedication to serving their community through scholarship, education and advocacy.

Distinguished Alumni recipients for 2020:

Athletic Training—Larry Cooper, BS '83

Audiology—David P. Jedlicka, BA '06, AuD '10

Clinical Rehabilitation and Mental Health Counseling—Catherine Armstrong Getchell, MS '04

Emergency Medicine—Mohamed Hagahmed, MD, BS '09

Health Information Management—Meagan Sampogna Williams, BS '00

Nutrition and Dietetics—Helen Agresti, BS '00

Occupational Therapy—Megan E. Driscoll, MOT '12

Physical Therapy—Cindy Miles, PT '77

Rehabilitation Technology—Jongbae Kim, PhD '05

Speech-Language Pathology—Rochelle S. Chabon, PhD '80

RISING STAR AWARD

This is the first year SHRS recognizes emerging leaders in the health and rehabilitation professions. The Rising Star Award honors more recent alumni who exhibit ongoing and exceptional growth in practice, research or service; demonstrate leadership in their field; and display a commitment to furthering their profession.

The first class of SHRS Rising Stars:

Occupational Therapy—Benjamin J. Gross, MOT '10

Physical Therapy—Michael B. Gans, DPT '06

Physician Assistant Studies—Kathryn J. Reed, MS '16

Prosthetics and Orthotics—Alexander M. Rodriguez Betancourt, MS '13

Rehabilitation Technology—Maria Luisa Toro Hernandez, MS '11, PhD '15

Speech-Language Pathology—Amanda I. Gillespie, MS '05, PhD '13

RESEARCH DISCOVERY AWARD

The first award of its kind at SHRS honors a world-class researcher within the SHRS alumni community. We recognize a commitment to professional excellence and dedication to serving the community.

The inaugural Research Discovery Awardee:

Ryan Comfort Branski, PhD '05 (CSD)

*Until we can
gather for
our formal
50th Anniversary
celebration, we
congratulate all
of our honorable
alumni.*

HUMANITARIAN AWARD

The SHRS Humanitarian Award recognizes individuals whose demonstrated leadership and outstanding volunteerism have served to improve the lives of others. We honor alumni who exemplify SHRS's commitment to community service and who personify the compassion and caring that is intrinsic to the varied health professions within the school.

Humanitarian Awardees:

Mary Lou Galantino, BS '82 (PT)

Eliana C. Ferretti, MS '03, PhD '07 (RST)

PHILANTHROPIST AWARD

SHRS would not exist today without the generous charitable support of corporations, foundations, alumni and friends. This special honor recognizes an individual or organization whose financial commitment to SHRS has made a lasting impact on the students, faculty, programs and research, and who has used philanthropy to further the mission, vision and values of SHRS.

The 2020 Philanthropist Awardee:

David H. Perrin, PhD '85 (HPA)

DEAN'S CHOICE

Throughout the years, SHRS alumni have made great strides in health-related fields. Our graduates are highly respected by their peers and some are recognized worldwide as leading experts. The Dean's Choice Award recognizes alumni who have successfully expanded their careers far beyond what their degrees signify.

The 2020 SHRS Dean's Choice Awardee:

Kysha Harriell, BS '96 (AT)

Ankitha Challapalli, Dianne Koval,
and Eugenia Noh

GO OUT AND MAKE A DIFFERENCE

For more than ten years, Dianne Koval has been offering career advice and on-the-job training to undergraduate students from Pitt's Health Information Management (HIM) program.

Koval is a registered health information manager and chief operating officer of Fishkill, N.Y.-based MedAllies, one of the nation's leading providers of electronic health records (EHR) implementation and health information services for interoperability between EHRs. With her background and experience, she has a wealth of valuable information to share.

"When students arrive at MedAllies, I make sure they are exposed to every aspect of our business," says Koval. "They see firsthand what it's like to have a career in this field. They work with all departments as account managers and project managers, and participate in face-to-face visits with clients."

"For the five weeks they are with us, they work hard. They get up early, they work late, and hopefully go home with a real sense of their unique skill set, and how it can best be used to become strong, inspiring managers and leaders," she adds.

Cassie Toolan is one of six HIM students working with Koval this spring. She says her internship is valuable because it is giving her a peek into the specialization within the field to help determine what area she may want to pursue after graduation.

"Learning what you like—and what you are good at—helps you to tailor a specific career path," notes Toolan. "Once you know what you are interested in, you can find opportunities to gain even more experience in that arena."

Weekly managers meeting at Panera Bread
(no computers allowed) to troubleshoot
problems as a team.

Toolan and the other Pitt interns are helping the MedAllies team implement interoperability workflows for care coordination among EHRs in physician practices across the states of New York and New Jersey.

"The students are working to help the practices become interoperable with their clinical trading partners," explains Koval. "MedAllies employees who developed the process serve as mentors, but the students are on the front lines, seeing how everything we do impacts patient care."

"We are working with health information exchange, software development, e-referrals, implementation and optimization, among other things," notes Toolan.

"It is exciting to see something being used in the workplace and thinking to yourself, 'we learned this in class!'" she continues. "It is very validating and rewarding to know your education has prepared you for current industry practices."

"Dianne has been a tremendous partner with the HIM department, frequently supervising multiple students at one time," notes Assistant Professor Patricia Anania Firouzan. "The students return from MedAllies invigorated by their experience and excited to share the work that they accomplished. Their experience serves them well as they enter the workforce."

Former MedAllies intern Ankitha Challapalli (BS '18) was invited to join the IT Leadership Development Program at Aetna, a CVS Health Company. She credits Koval with preparing her for the two-year-long program, where she rotates through four different areas within the IT organization.

"Dianne gave me a lot of hands-on exposure during my time at MedAllies," says Challapalli. "From day one, she immersed all the interns in team meetings, events and innovation sessions."

"Dianne handed us the opportunity to network, learn and absorb as much as we could," continues Challapalli. "She went above and beyond in providing us with a versatile range of activities that helped build confidence and passion for health care technology."



Escape room activity with the team.

Koval says she treats interns like managers at MedAllies, having them travel with the company to national conferences and develop activities, materials and programs that the entire company can use.

"Students have contributed so much to MedAllies over the years," Koval notes. "In addition to working on specific HIM-related projects, they have created our company's Business Continuity Plan, generated a new leads list for prospective clients, developed a new hire orientation program and an acronym list to help future interns get up to speed quickly, along with other management and team-building activities."

Toolan notes that Koval is helping her to cultivate both soft and hard business skills. "We are learning that both are just as important in the HIM field, and to learn from the best mentor and her team will prepare me to be a better employee," says Toolan.

"In addition, I am excited to learn about areas that I have not yet explored," she adds. "Because HIM is always expanding, I will be prepared to adapt to the change and even be a part of the change in the future."

Koval has a number of goals for the interns she supervises. "I want them to have a better understanding of how health information technology leads to improved clinical care," she says. "But I also want to instill in them the importance of being a strong manager and leader in the industry."

"Strong managers have the power to create a culture of caring, collaboration and even friendly competition among their employees," she continues. "When people love what they do, they are happy to go to work every day, and that results in high engagement and productivity for the individual and the company."

Koval encourages all of her students to develop the leadership skills they need to go out and make a difference in the industry and in the clients they serve, and, when they are ready, to become mentors themselves. ■



FORGE AHEAD: RESEARCH AND TECHNOLOGY IN A NEW DECADE



Take approximately 140 dedicated faculty members supported by 120 staff, coupled with more than 1,300 passionate students. Add state-of-the-art science laboratories, a spirit of collaboration and a desire to create new knowledge that can improve the health, wellness and rehabilitation for people with disabilities or who are at risk for disabilities due to illness or injuries across the lifespan.

This is SHRS in 2020. A powerhouse of research, technology and innovation.

During the first 25 years of its existence, SHRS established its reputation for excellence in clinical education, with little research funding. During the 1990s, a concerted effort began to foster a culture of scientific inquiry and research. Recently, there has been a surge in the number and scope of studies, particularly in areas that touch the lives of persons with disabilities.

In fiscal year 2019, SHRS reported \$24.7 million in grant money, supporting more than 200 research projects.

The grants come from prestigious funders including the National Institutes of Health (NIH), the Department of Defense (DoD), the National Science Foundation, the Patient-Centered Outcomes Research Institute, the Department of Veterans Affairs and the Department of Health and Human Services.

Elizabeth R. Skidmore, SHRS associate dean of Research and professor and chair, Department of Occupational Therapy (OT), says there's a good reason that funding agencies are attracted to SHRS.

"We are distinct among schools of similar nature in the breadth, volume and impact of the research conducted by our students and faculty," she notes.

"Rather than specializing in one particular clinical population or one particular methodology, our research addresses a wide range of clinical and public health needs, impacting practice at the level of the person, provider, health system and federal health policy," Skidmore continues.

"NEVER DOUBT THAT A SMALL GROUP OF THOUGHTFUL,
COMMITTED CITIZENS CAN CHANGE THE WORLD.
INDEED, IT IS THE ONLY THING THAT EVER HAS."

~ MARGARET MEAD



GETTING THE RIGHT TREATMENT TO THE RIGHT PEOPLE AT THE RIGHT TIME.

Optimizing the quality of life for patients is an overarching goal of much of the research conducted at SHRS. Investigators in every department and program are examining physiological and behavioral mechanisms of disorders and recovery. They're improving diagnostic methods and developing and testing novel interventions that impact patient care.

Technology plays a major role.

In his highly sophisticated psychoacoustics lab, Communication Science and Disorders Associate Professor Christopher Brown uses multi-channel sound arrays and electroencephalography to study tinnitus, hearing impairment and cochlear implant processing.

Professor Bradley Nindl and Assistant Professors Chris Connaboy and Shawn Flanagan, faculty in the Department of Sports Medicine and Nutrition, use electroencephalography, brain imaging and motion analysis in the Neuromuscular Research Laboratory to study cognitive and physical performance in active military members and elite athletes.

David Brienza, associate dean for Technology and Innovation and Rehabilitation Science and Technology professor, has developed and evaluated technology to preserve tissue integrity in people with activity and mobility limitations, while Skidmore uses augmented reality to address cognitive impairments in patients who have experienced stroke.



INTERDISCIPLINARY COLLABORATION AND BEST PRACTICES.

A new model of interdisciplinary collaboration at SHRS has taken hold, resulting in breakthrough research that addresses social as well as medical issues, and sets new standards of rehabilitation care.

Through a grant from NIH, investigators from the Department of Physical Therapy (PT) and the University of Pittsburgh's Schools of Medicine, Engineering and Education have established the Low Back Pain Center at Pitt.



"Unfortunately, some people with chronic low back pain end up taking opioids for lack of a better alternative, despite the lack of research supporting their use for chronic pain," notes

Dean and PT Professor Anthony Delitto. "The Center will largely focus on thoroughly understanding the individual characteristics of patients with acute and chronic low back pain to then help develop more effective and safer treatments."

At the Human Engineering Research Laboratories (HERL), Pitt researchers are working with the University of Pittsburgh Medical Center Community HealthChoices Health Plan and Transitional Paths to Independent Living. Together they are piloting a comprehensive technology-based intervention known as ASSIST—Autonomy, Safety and Social Integration via Smart Technologies. It supports independent living and community integration of people with physical disabilities who are at risk of institutionalization.

ASSIST focuses on providing mainstream home automation technologies, such as entry control and light control, as well as access technologies like smart speakers and touch-free access to smartphones. It may also include apps for smart speakers and smartphones that support instrumental activities of daily living and community integration. ASSIST will match the needs of individuals with disabilities to these technologies and provide targeted training to ensure technologies would be used effectively by people with physical disabilities.

According to HERL Associate Professor Dan Ding, "Through these technologies, we believe that individuals with disabilities will be able to live more independently, become more connected to their communities, and have more choices and control over their lives."

UNIQUE GRANT FROM NIDILRR.

Through a \$4.3 million grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), scholars from SHRS, Pitt's School of Nursing and the University Center for Social & Urban Research (UCSUR) have established the National Rehabilitation Research and Training Center on Family Support.

The Center is unique in that it leverages modern medical research and technology to improve not only the health and quality of life for people with disabilities, but also those who support them.

"This is the only grant of its kind awarded by NIDILRR," notes Bambang Parmanto, Health Information Management chair and professor. "We received this funding because Pitt stands out as a leader in the field of caregiving, and we have the expertise in technology for health intervention and implementation."

Four different research initiatives—two from SHRS—are currently underway.

Parmanto, the Center's co-principal investigator and an individual grantee, is developing a mobile health (mHealth) app that addresses the special needs of caregivers. The app will be delivered on a smartphone and include a portal where caregivers can access information and resources that can improve their own health and wellness while they care for a person with disabilities.

OT Associate Professor Pamela Toto is adapting and implementing an evidence-based intervention that promotes aging in place and reduces the burden of care for older adults and their caregivers through the Area Agency on Aging.

CAPABLE, the Community Aging in Place—Advancing Better Living for Elders intervention, focuses on providing client-centered care to maximize wellness and prevent or reduce disability.

"The goal in developing the Center is to centralize successful caregiver training and resources across the University, beyond SHRS, UCSUR and Nursing," states Toto. "We don't and shouldn't treat clients in silos, so it makes sense that we don't use that approach to meet the needs of caregivers either. The grant gives us permission—and an obligation—to create the best resources through an interprofessional approach."

A REFRESHED INFRASTRUCTURE FOR RESEARCH SUPPORT.

The SHRS Data Center, formerly the PT Data Center, now provides a broader range of support in all phases of research, from pre-award to post-award. It offers a variety of services including data management, web-based applications, data monitoring and statistical analyses for large, multi-site clinical trials, health services and implementation research and large observational studies.

Charity Patterson, PT professor and Data Center director, says that since 2017, the SHRS Data Center has grown from supporting one multi-center trial sponsored by the DoD to managing five multi-center trials from various funding agencies.

Previous funding averaged \$315,000 per year, but projections for fiscal year 2020 are closer to \$800,000.

"The Data Center is committed to team science and research integrity. We provide expertise in study design, data quality and analysis in all phases of research," Patterson adds.

THE CHALLENGE IS ON.

Research and innovation go hand in hand. Today, in conjunction with the University's Innovation Institute, SHRS is holding its first innovation challenge. Faculty, staff and students are invited to compete for funds to assist with the translation of technology. The multi-step challenge involves an educational program and development activities.

"Rehabilitation research is not finished until it is translated into products and services that improve people's lives," notes Brienza. "At SHRS we are working to take the scientific knowledge and technology we generate to where it can have real impact. That's the last significant mile in the process."

"The highly productive research programs at SHRS are well-respected throughout the rehabilitation and health science field," continues Skidmore. "This is evident from the increased external funding, the many journal publications and number of panels our faculty are invited to join. In the decade ahead, we will build on what we have already established—a highly collaborative environment that supports centers of excellence throughout the University and across the nation." ■

Research opportunities for undergraduate students include working in one of these discipline areas, either as an unpaid volunteer or paid intern, for academic credit or as part of the Bachelor of Philosophy program:

- Clinical Rehabilitation and Mental Health Counseling – **Kelly Beck**
- Communication Science and Disorders – **Katie Belardi**
- Emergency Medicine – **Tom Platt**
- Health Information Management – **Patricia Anania Firoozan**
- Occupational Therapy – **Laura Waterstram**
- Physical Therapy – **Sara Piva**
- Rehabilitation Science and Technology/ Prosthetics and Orthotics – **Dan Fisher**
- Sports Medicine and Nutrition – **Kevin Conley**



PUTTING A *SPRING* IN THEIR STEP



Stroke is one of the leading causes of disability in the United States. When a stroke occurs, part of the brain is deprived of blood, causing a variety of mental and physical impairments.

Frequently, survivors of stroke have difficulty standing or walking because they lose control of muscles and coordination.

According to Christopher Hovorka, assistant professor in the Prosthetics and Orthotics (P&O) program, assistive devices such as braces—also known as orthoses—are traditionally used to stabilize the ankle and foot to keep patients who have weak muscles from collapsing when they stand and walk. “The brace acts as a surrogate muscle,” explains Hovorka. “But over time, the muscle itself becomes weaker and less active.”

This phenomenon, known as “learned disuse,” can eventually result in muscle atrophy. “It’s like the old adage, ‘if you don’t use it, you lose it,’” Hovorka continues. “This notion has led some rehabilitation practitioners to avoid the use of motion-constraining lower limb orthoses combined with footwear.”

According to Hovorka, there is growing evidence showing that new materials and technologies, including one that has a spring-like mechanism in the orthosis, can improve the walking velocity and ankle power of highly active persons with neuromuscular disorders, such as children with cerebral palsy and former military service members.

But there is limited research on the efficacy of similar ankle braces on the gait of less active patients, like stroke survivors. In addition, there is little knowledge on how orthoses control motion or influence a person’s neuromotor control system.



In a new study, Hovorka is collaborating with several partners to examine the effectiveness of several types of lower limb orthoses as they relate to the quality of life, satisfaction and fluidity of gait among stroke survivors.

Fior & Gentz Neuroswing of Lüneburg, Germany, and Tillges Technology of Maplewood, Minn., are designing the various orthoses for use in the study, while Del Bianco Prosthetics and Orthotics in Raleigh, N.C., serves as the clinical testing site.

Co-investigator of the study is Del Bianco’s Gary Wall, a certified prosthetist and orthotist. He recruits and fits patients with either an articulated or non-articulated brace that contains the spring technology, a conventional, rigid orthosis or no orthosis at all.

The team will examine clinical outcomes based on the OPUS Health Quality of Life Index, OPUS Satisfaction with Device Use assessment tool, and other measures such as a two-minute walk test, narrowing beam-walk test, and timed up and go.

“We are at a time of great advances in the field of P&O,” says Wall. “While prostheses usually grab the attention of mass media and research funding, orthoses are also seeing a revolution in available ankle joints and material construction.”

“However, orthotists have little authoritative knowledge on how newer designs work, what patients are best suited for them, and most importantly, which designs are preferred by the patient,” he continues.

Hovorka believes this study will begin to provide some of the critical information that clinicians need.

“Preliminary results are showing that stroke survivors are walking with a more fluid forward motion when they use orthoses that contain the spring mechanisms,” reports Hovorka. “The springs release stored energy to control tibial advances and facilitate ankle power.”

“However, we also need to explore how to design a brace with the correct number of springs to help a patient walk more quickly,” he continues. “We believe this will also increase the patient’s muscle activity.”

Hovorka says it will likely take years of study to effectively prove his hypothesis, but small studies such as the one they are currently conducting provide evidence that can be used moving forward.

“Having a clinical partner such as Del Bianco Prosthetics and Orthotics is tremendously helpful,” Hovorka adds.

“The value of university collaboration with an independent clinic as ours cannot be overstated,” says Wall. “Oftentimes, university research is hampered by the lack of access to ‘real’ patients and current clinical knowledge, while clinics such as ours lack the overhead for Institutional Review Board submission and professional staff to turn our findings into results that can be published in peer-reviewed manuscripts.”

Hovorka says that as knowledge is updated with well-controlled clinical research in this area, it will help inform practitioners of optimal evidence-based therapies involving exoskeletons, orthoses and footwear. ■



RISKY BUSINESS: DEVELOPING TECHNOLOGY TO ASSESS INJURY RISK

Imagine a receiver clutching a football, heading toward the end zone with two defenders closing in. Based on an internal understanding of his physical abilities and an attuned perceptual system, the receiver sees an opportunity to split the defenders and score a touchdown.

But what happens if the receiver recently returned from a sports-related concussion? Will his perception of the closing distance between the two defenders and his goal be accurate enough to make the right moves? And will he be able to realize the action with enough precision to avoid being tackled?

Perception-action coupling behaviors such as these are of great interest to SHRS alumnus and Pitt School of Medicine Post-doctoral Fellow Shawn R. Eagle (PhD '19) as he investigates sports-related concussions at the UPMC Sports Medicine Concussion Program.

“Studies show that there is an increased risk of musculoskeletal injury after concussion but no one knows why,” says Eagle.

A unique tool known as the Perception-Action Coupling Task (PACT) is helping Eagle determine some of the “whys.” In a recent study, he used PACT to evaluate the differences between athletes with a history of concussion (but cleared for full activity) and those with no history of concussion.

PACT is a tablet-based software application that was developed by Chris Connaboy, assistant professor, Department of Sports Medicine and Nutrition (SMN). It requires participants to quickly and accurately complete a task that involves “throwing” virtual balls through virtual holes that randomly change sizes. Among other things, PACT measures reaction, movement and response times as they relate to the accuracy of judgment.

Eagle administered the PACT assessment along with two of the most widely used concussion screening tests—the Immediate Post-concussion Assessment and Cognitive Testing (ImPACT) and the Vestibular Ocular Motor Screening (VOMS).

He found that college-aged athletes who had recovered from a sports-related concussion within the previous two years demonstrated slower and less accurate performance on the PACT test compared to athletes with no sports-related concussion history. They also exhibited several impairments that were not evident through other measures, including vestibular/oculomotor dysfunction.

According to Eagle, these deficits in perception-action coupling behavior is a critical finding. “Athletic competition involves a myriad of dynamic movement decisions that requires the detection and integration of perceptual information with subsequent adaptations to motor output.”

He adds that subsequent research in perception-action coupling behaviors might help mitigate the risk of another concussion or musculoskeletal injury for athletes.

Connaboy says PACT offers portability and convenience to researchers who are investigating behavioral risks in a variety of populations. He originally developed the assessment to measure how astronauts at the NASA Human Exploration Research Analog (HERA) site adapted to rapid and unpredictable changes during a 30-day period when they were exposed to isolated, confined and controlled environments.

“The inability to correctly perceive possibilities for actions may cause astronauts to attempt behaviors that place them at greater risk,” says Connaboy. “If an individual incorrectly perceives their ability to complete an action, they may either attempt an action that is not possible or not attempt an action that is possible.”

“This greatly impacts the success of the mission as well as the safety of the astronaut,” he continues. “If we can identify behaviors that cause risk, we can help to avoid future accidents and injuries.”

During the HERA study, PACT provided critical information to doctoral student Alice LaGoy (MS '17) as she investigated how sleep patterns affect performance. LaGoy learned that accuracy of judgment was worse in individuals who slept less and had worse sleep quality. Better sleep related to improved perceptual judgments but not quicker judgments, since better sleepers had slower response times than those who did not sleep well. Conversely, both accuracy of judgment and response times were affected by one night of sleep deprivation.

“We found that performance was influenced by individual daily variation in sleep patterns and by sleep deprivation,” notes LaGoy. “The patterns of response time were also influenced by feelings of anxiety and apprehension.”

The compelling utility of PACT assessments has resulted in a newly funded grant from the U.S. Department of Defense. The Neuromuscular Research Laboratory team will employ PACT to study sleep deprivation and performance among members of the U.S. military in order to characterize key markers of cognitive resilience among warfighters.

“PACT is one way we use our knowledge and expertise to address real-world problems,” says Connaboy. “We hope to commercialize this tool to help minimize risk and prevent injuries for individuals in a variety of occupations, from long-haul truck drivers and airplane pilots to health care workers and those who work in the oil fields.” ■





FIRST-EVER SCHOLARSHIPS HELP COUNSELORS SEE STUDENTS IN A NEW LIGHT

Individuals who are blind and visually impaired typically have the highest rates of post-secondary education of any disability category. But they also tend to have the highest rates of unemployment and underemployment after completing their studies.

The reason: Teachers, support personnel and counselors are not always trained in the disability-specific needs of transition-aged blind students, or the steps they can take to help them.

That's about to change, thanks to a grant from the U.S. Department of Education called Project CRESTS (Certified Rehabilitation Counselors and Educators Supporting Transition Success).

Project CRESTS offers an interdisciplinary, collaborative approach to improving the training of educators and counselors who are interested in working with young adults with visual impairments.

In the fall of 2020, five full-tuition CRESTS scholarships—the first ever in the Clinical Rehabilitation and Mental Health Counseling (Counseling) program—will be awarded to Counseling students who are committed to this cause.

According to Counseling Assistant Professor Jamie Kulzer, students will receive cross-disciplinary instruction to meet the communication and adaptive needs of clients with visual impairments.

“Our scholars will enroll in two additional courses offered by Pitt’s School of Education’s Teachers of Students with Visual Impairment program,” says Kulzer. “They will also complete their clinical experiences with students who are blind or visually impaired at facilities such as the Western Pennsylvania School for Blind Children.”

“Ultimately, this interdisciplinary training grant will elevate the curriculum in the Counseling program and positively impact the lives of individuals with visual impairments,” Kulzer adds.

Tessa McCarthy, Department of Instruction and Learning in Pitt’s School of Education, serves as the principal investigator on the CRESTS grant.

“There are very few things that someone with vision can do that someone without vision can’t do,” explains McCarthy. “The person who is blind may just need to perform tasks differently, be a bit more organized and convince the people around them of their capabilities. I think the Counseling students who participate in Project CRESTS will be able to see firsthand that this really is true.”

Kulzer agrees. “Due to the large number of counseling courses required by our accrediting body, CACREP, Counseling training programs lack focus on specific needs for individuals who are visually impaired. With Project CRESTS, we have a unique opportunity to give counselors additional specialized training in a high-needs area.” ■

ANNOUNCING THE NANCY L. OYLER STUDENT AWARD IN COUNSELING

Additional Counseling scholarships are being offered beginning in the fall of 2020 through the generosity of the John Francis Oyler and Nancy Lee Victoria Fleck Oyler Foundation. The Nancy L. Oyler Student Award in Counseling will be presented to Counseling students who exemplify a commitment to excellence in service to persons with disabilities.



The late Nancy Oyler and her husband, Dr. John Oyler.

The award honors the late Nancy Oyler’s career as a rehabilitation counselor who provided psychosocial adjustment services to persons with disabilities. She began working at the Greater Pittsburgh Guild for the Blind while attending graduate school at Pitt. After taking a hiatus to raise her three children, Nancy Oyler returned to the Guild, which had been

renamed Blind & Vision Rehabilitation Services of Pittsburgh, until her retirement in 2005.

Nancy’s husband, Dr. John F. Oyler, retired associate professor, Department of Civil and Environmental Engineering at the University of Pittsburgh, says his wife was heavily influenced by the philosophy of Father Thomas Carroll, as recorded in Carroll’s book, “Blindness: What It Is, What It Does, and How to Live with It.”

“Father Carroll believed that psychological rehabilitation was necessary before physical rehabilitation could succeed,” notes Dr. Oyler.

“Nancy was always grateful for the opportunity to earn a master’s degree in Rehabilitation Counseling,” he continues. “We are eager to see this program continue to flourish. We felt the best way to honor her was to provide similar opportunities to current and future students.”

Counseling Director and Professor Michael McCue calls Nancy Oyler a visionary and an advocate. “She was particularly passionate about supporting individuals with disabilities. It is entirely fitting that the new scholarship be awarded to students who plan to follow in her footsteps.”

“We are very grateful to the Oyler Foundation for this endowment,” says McCue. “While it takes a great financial burden off the recipient, it also epitomizes the concept of paying it forward. We hope to instill that idea in all of our students, and this award is a wonderful example.”



LET'S GET PERSONAL

Let's talk about how occupational therapists go out of their way to find personalized solutions to help people live fuller lives.

They devise novel ways to help people of all ages perform the activities that they want and need to do. Because clients may be recovering from illness or injury or living with a permanent disability, occupational therapists may adapt the activity, modify the environment or use an assistive device.

But Department of Occupational Therapy (OT) Instructor Jennifer White is using innovative technology to take adaptive creativity to an even higher level. She's using 3-D printing. This, she says, gives new meaning to the words "individualized care."

"OTs have always used rudimentary technology in the field," notes White. "For example, we typically make our own splints that fit the needs of individual clients. But 3-D printing lets us do it faster and more economically, allowing us to reach a broader patient population."

Until now, occupational therapists used traditional materials such as thermo-plastics that are very expensive. The splints take long to fabricate and then need to be fitted to the individual client. Often, the splint needs to be adjusted—or even re-created.

Splints created with 3-D technology cost just a few dollars compared to several hundred dollars for traditional thermo-plastic splints. Furthermore, the material used in 3-D printing is totally recyclable.

"If you need to make adjustments, the material goes flat and can be reused over and over again," continues White. "This allows us to make effective and inexpensive modifications as the patients' needs change."

Madeleine Wirth (BS '17) used 3-D printing to create a customized splint that enabled a client to have better use of her hands.



White began teaching 3-D printing technology in her Biomechanical Theory and Practice class in 2017. Students learn how patterns are created based on specific sizes and shapes, and then use spools of polylactic acid "thread" to build the splint on the 3-D printer.

"The real skill comes from the OT's ability to fit the splint to the client's needs," notes White.

Several Doctor of Occupational Therapy (OTD) students recently took what they learned in White's class and applied it in their Level II fieldwork.

Madeleine Wirth (BS '17) created a customized splint for a client with a spinal cord injury who was living in a skilled nursing facility. "The client had limited use of her upper extremities," says Wirth. "Her goals were to read her Kindle, grab her own tissues and feed herself."

At first, Wirth tried a more traditional intervention that was not effective. She recalled the success of the splints made with a 3-D printer. After taking precise measurements, Wirth printed a splint that gave her client more independence.

"My fieldwork educator was very excited about the new approach," adds Wirth.

Fellow student Haley Feller (BA '14) gave a presentation about using 3-D printing to create custom orthoses for clients in the outpatient clinic where she was completing her fieldwork.

"Neither my fieldwork supervisor nor the physical therapists on staff were familiar with 3-D printing or its effectiveness in a therapeutic setting," says Feller.

"The biggest benefit for clients is that 3-D printing leads to greater levels of customization without sacrificing durability and quality of the orthosis," Feller adds. "An indirect benefit is that it is less expensive to produce, which could result in lower costs to insurance companies."

White says that while 3-D printing has not been perfected yet for general use in OT practice, she foresees a time when it is readily available.

She adds that some occupational therapists currently use 3-D technology to provide low- to no-cost adaptive equipment to help clients complete an activity, modify their environment or use an assistive device.

White has future plans to provide students with more hands-on experiences with the 3-D printer. Her idea is to involve students in the creation of adaptive devices and occupation-based interventions using 3-D technology for a simulated patient who has rheumatoid arthritis. Additionally, she plans to introduce students to software like Tinkercad, a free online app used to create 3-D designs.

"Learning how to create custom 3-D printed assistive devices and occupationally based activities will empower future practitioners to improve the health and well-being of all patients," says White.

Students like Wirth share her vision. "The intersection of technology and health care, specifically rehabilitation, is complex," she observes. "After my experience in the field, I can envision technology that tracks repetition and movement outside of therapy sessions. This would inform therapy plans and the quality of therapy for our clients."

Feller agrees. She foresees virtual reality becoming a more commonplace technological intervention in occupational therapy sessions of the future. "Through virtual reality, OTs could simulate occupations with clients before actually stepping into the occupation in a contextually appropriate setting," observes Feller. "That way, we will be able to provide even more personalized occupation-based care to clients." ■



BREAKING DOWN SILOS, CREATING NEW KNOWLEDGE

Silo busting is not a new idea. For decades, forward-thinking companies have been coaxing individuals out of their cubicles to collaborate with coworkers in efforts to improve productivity and profitability. When it comes to research, this approach has not always been easy. But in the Department of Communication Science and Disorders (CSD), faculty are sharing their lab resources and vision with others, not only within their own department but across disciplines, with seemingly unlikely partners throughout the University of Pittsburgh.

The result is a dynamic cross-pollination of ideas. And exciting breakthroughs destined to improve patient care.

CSD Professor James Coyle has forged a unique research partnership with Dr. Ervin Sejdic, associate professor in the Department of Electrical and Computer Engineering (ECE), Swanson School of Engineering. Both are committed to helping individuals with dysphagia (swallowing disorders) due to neurological conditions such as stroke, Parkinson's disease, ALS and traumatic brain injury, or other causes, achieve improved health and a better quality of life.

Over the past nine years they have collaborated on grants and co-authored more than 30 journal articles. Their greatest accomplishment to date is the development of a new field—computational deglutition—that uses artificial intelligence and its main components such as signal and image processing to gain a better understanding of swallowing disorders.

Typically, patients with dysphagia undergo screening or sophisticated diagnostic assessments by highly trained speech-language pathologists. “The most common tests to evaluate swallowing use x-ray fluoroscopic or fiber optic equipment,” notes Coyle. “These tests are not available to all patients, are costly and invasive, and can involve the use of radiation exposure.

“Our research has proven that we can use complex algorithms and machine learning to approximate the accuracy of an expert clinician's judgment in identifying dysphagia,” he adds.

In a recent study, Coyle and Sejdic assessed the physiological components of swallowing by tracking the movement of the hyoid bone in 114 patients at UPMC Presbyterian Hospital. In addition to fluoroscopic testing, they attached a non-invasive accelerometry sensor to the surface of the neck of each patient.

Coyle reports that the sensors not only proved to be nearly as accurate as the judgment of expert human clinicians using x-ray images in diagnosing physiological movement of the hyoid bone but showed that hyoid bone movement tracking was influenced by patient diagnosis. In the past, these findings have been possible only through the use of x-ray imaging.

“This provides preliminary evidence for using the sensor as a noninvasive screening instrument and tool,” notes Coyle. In the future, he urges researchers to share data sets with other researchers in an effort to standardize instrumentation and develop algorithms that can improve health care delivery and patient outcomes.

Sejdic agrees. “In our work, we're able to combine multiple disjointed fields in artificial intelligence such as data science

and machine learning with speech-language pathology to develop novel swallowing screening and assessment tools that can be translated to bedside.

“The main purpose of the field of computational deglutition is to utilize advances in data science and artificial intelligence to develop better tools for patient care,” he continues.

“The Pitt ECE department thrives on interdisciplinary collaboration,” notes ECE Department Chair Dr. Alan George. “Our top strategic emphasis is research and education in computer and electrical engineering for the health sciences, and thus the growing partnership between our two departments and schools is of paramount importance to our interests and future.”

VOICE AND PERCEPTION.

CSD Assistant Professor Leah Helou is using machine learning to study the relationship between communication and a person's perceived identity.

“Your voice and speech behaviors strongly impact how others perceive you,” explains Helou.

Helou says the human brain makes complex “social calculations” about a person based on their voice and speech. In our culture, a listener might think someone sounds like a leader, another person with a soft voice might be perceived as compassionate, and someone with a timid voice might seem insecure. Interestingly, Helou has shown in her research that individual listeners often aren't accurate about a speaker's personality traits, but groups of listeners tend to agree about a speaker nonetheless.

“Now we not only have the technology to build a massive speech repository, we can also extract information to determine what voice and speech features facilitate certain perceptions,” Helou continues. “Maybe we can identify less stereotyped social markers. For instance, leadership can sound different across people. What does leadership sound



Engineering and CSD PhD students in the x-ray room testing equipment.

like in millennial women of color versus older Caucasian men? I can imagine many interesting and useful social ramifications here.”

Assistant Professor Jason Bohland, who joined the CSD department in September 2019, is an expert in speech production. With a background in computer and electrical engineering, speech science and computational neuroscience, he is collaborating with Helou to direct the machine learning efforts and determine which voice and speech features drive listeners' perceptions.

“Part of my work involves analyzing large datasets, including behavioral data, functional and structural brain imaging data and gene expression data,” says Bohland.

Helou is currently developing a website that other researchers could access and use to upload their own speech samples and solicit listener ratings of those samples. “The sharing of information will help us unmask the mysteries of voice and identity perception.”

“This project is a good example of how taking what might have been a small experiment in a research lab to a much larger scale can enable more powerful conclusions and give other researchers a rich dataset to address future questions,” adds Bohland.

CSD Professor and Department Chair Bernard Rousseau believes collaborations such as these have the potential to increase the impact, translation and commercialization of new technologies and tools to improve health-related quality of life in voice and swallowing.

“These projects demonstrate the powerful impact of bringing teams of clinicians, scientists and engineers together to transform health care. These interdisciplinary research collaborations align very nicely with our vision to advance health and wellness and eliminate barriers to full life participation,” says Rousseau. ■





RESEARCH SUCCESS = PATIENT SUCCESS

“When we conduct research, it’s always nice to have our work published in prestigious journals. But that is not why we do it,” states Associate Professor Michael Schneider, Department of Physical Therapy (PT). “We do it because we want health care professionals to take these novel ideas and therapies and implement them in their clinics and practices where they can make a real difference in the lives of patients.”

The PT researchers at SHRS have an excellent record of making this happen. The results of their research funded through the Patient Centered Outcomes Research Institute (PCORI) are prime examples.

PCORI is the country’s leading research organization dedicated to funding studies comparing which care approaches work best for which patients, focused on outcomes most important to them. PCORI has also been acknowledged as a leader in influencing the U.S. clinical research enterprise to become more patient-centered.

In 2012, Schneider was the first investigator from the University of Pittsburgh—and among the first 25 in the nation—to be awarded a PCORI clinical effectiveness grant. Thanks to his research, older patients with lumbar spinal stenosis (LSS) and their health care providers now have three evidence-based non-surgical interventions that are safe and helpful alternatives to steroid injections or surgery.

“Prior to this study, we were lacking evidence of the effectiveness of non-surgical treatment options for this condition,” notes Schneider. “Today, with evidence in hand, we are offering continuing education classes for physical therapists and chiropractors about effective manual therapies and exercises for patients with LSS and are working to implement appropriate interventions in the UPMC Centers for Rehab Services across the area.”

“PCORI is unlike other funding agencies in that it really challenges investigators to engage with patients in a systematic way at various stages of our research,” says Associate Professor Sara Piva. “This allows us to consider patient needs and opinions at the beginning of our study, and then follow up with them at the end of the project using methods such as focus groups to hear what they liked about different interventions.”

In Piva’s research, she compared the effectiveness of three different treatments for patients following total knee replacement. One group was under the care of a physical therapist, one group participated in group exercises at a community center and one group did not take part in any study-related exercises.

“Although all three groups improved in physical function, the patients in the PT group did the best when faced with challenging daily activities that they want or need to do, like carrying a bag of groceries up a flight of stairs,” notes Piva. “Patients and doctors can now use this evidence when they’re considering options for improving physical function at later stages of recovery after knee replacement surgery.”

TARGETING RISK.

“PCORI’s mission is to fund research that helps patients consulting with their doctors to weigh their health care options and make the best choices based on their values, preferences and circumstances, which totally aligns with research at SHRS,” notes SHRS Dean and PT Professor Anthony Delitto.

Delitto recently completed a PCORI study that evaluated the feasibility and effectiveness of using a nine-item prognostic screening tool to successfully identify groups of patients with the highest risk for transitioning from acute low back pain (LBP) to chronic LBP.

In the Targeted Interventions to Prevent Chronic Low Back Pain in High-Risk Patients (TARGET) trial, investigators from four sites across the United States examined the effectiveness of psychologically informed physical therapy (PIPT) compared to usual care alone for LBP patients identified as high risk for developing chronic back pain.

Results showed patients in both groups had higher-than-expected transition to chronic LBP. However, the stratification tool successfully identified groups at highest risk, where almost 50% transitioned to chronic.

“Low back pain is a highly prevalent condition,” continues Delitto. “Many patients do well with little intervention. However, some patients do require more attention, and the trick is to distinguish those who are at higher risk and provide focused interventions to prevent transition to chronic.”

ON THE MOVE.

Walking difficulty is a common and costly problem for many older adults. But now, thanks to the research efforts of Professor Jennifer Brach, there’s a solution.

Brach’s PCORI-funded On the Move (OTM) group exercise program focuses on the timing and sequences of a patient’s movements to improve the smoothness and efficiency of walking. Music, partner activities and certain props keep the exercise session lively and fun. “On the Move exercises were proven to improve overall walking difficulty better than typical group exercises,” says Brach.

Since results were published in the Journal of the American Medical Association, the National Council on Aging has designated On the Move as an evidence-based program that “meets rigorous standards for quality research and readiness for community use.”

Brach and her team are currently offering training sessions in various cities across the country to prepare certified OTM instructors, and through a new grant proposal to the National Institutes of Health, Brach is hoping to implement the program across Western Pennsylvania. So far, she has also partnered with the YMCA of Greater Pittsburgh to offer OTM classes to its members.

“It’s very satisfying to see a program that was introduced in a research environment now being used effectively in the real world,” notes Brach. ■





TURNING IDEAS INTO IMPACTFUL SOLUTIONS

The numbers are staggering. The World Health Organization estimates nearly one billion individuals in the world would benefit from one or more assistive devices to help them overcome the barriers that exist in their lives. Furthermore, the organization predicts that number will double by 2050 due to expanding population rates.

Associate Professor Jonathan Pearlman, Department of Rehabilitation Science and Technology (RST), and Associate Professor Mary Goldberg, Human Engineering Research Laboratories (HERL), are on a mission to help fill that need. As recipients of a \$4.6 million grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), they have created IMPACT, the Initiative to Mobilize Partnerships for Successful Assistive Technology Transfer.

Now in its second year, the IMPACT Center provides training and support for other NIDILRR grantees to successfully move their assistive technology ideas through the development pipeline.

“There is an urgency to build capacity for assistive technology transfer,” says Pearlman. “The IMPACT Center is designed to foster interdisciplinary collaboration and to share our expertise in research and development with other grantees.”

The first cohort of grantees recently completed a massive online training course called idea 2 IMPACT (i2I). The course is hosted on Coursera and is open to anyone around the world interested in taking it on-demand asynchronously.

“The goal of the training is to help researchers and entrepreneurs understand their strengths and identify challenges that might impede getting their products to market,” explains Goldberg.

“The pathway to commercialization might be different for a product developed by a small business compared to one from a large university,” she continues. “We focus on creating the means to ensure success for every grantee.”

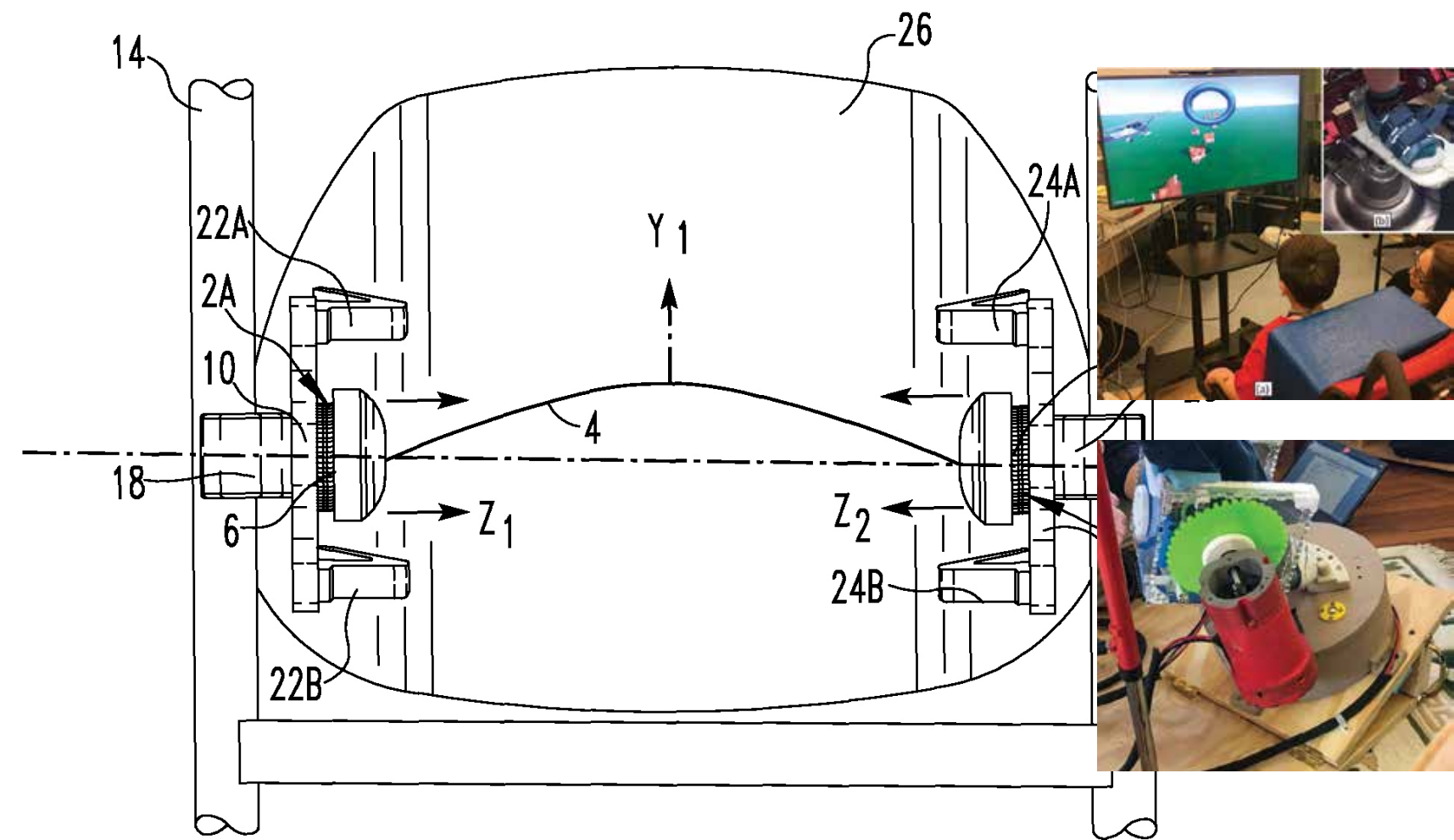
Kevin Cleary, scientific lead, the Sheikh Zayed Institute for Pediatric Surgical Innovation at Children’s National Hospital in Washington, D.C., serves as the principal investigator and project lead of a team composed of physical therapists and engineers. They developed an ankle robot for rehabilitation of children with cerebral palsy.

“The ankle robot controls an airplane video game which the kids play to exercise their ankle and improve their range of motion,” explains Cleary. “Improved range of motion should help them ambulate better.”

The team hoped the i2I training would help them develop a business plan. “Instead, it made us realize we need to talk to customers outside our local environment first to better define the need and the desired size of the device,” Cleary adds. His team will participate in the second phase of training in the spring of 2020.

A collaboration between researchers at the Boston University School of Public Health and Phoenix Society for Burn Survivors led to the development of the Life Impact Burn Recovery Evaluation (LIBRE) Profile, a measure of social participation for persons with burn injury. The LIBRE Profile is a computerized adaptive test that assesses six social participation domains. Research has demonstrated the validity and reliability of the LIBRE Profile and it is ready for dissemination.

Mary D. Slavin, director of Education and Dissemination, Health Outcomes Unit, Boston University School of Public Health, and Amy Acton, Executive Director of the Phoenix Society for Burn Survivors, are working to make the LIBRE Profile available to improve the lives of persons with burn injury.



“Through idea 2 IMPACT training, we learned that we are at a critical juncture,” says Slavin. “We have an important product and a vision for how we could implement the LIBRE Profile, but we lack the relevant business and technology expertise to bring this product to the next level.”

The IMPACT Center will help the team take the next steps. “Developing a strong business plan will help us secure funding to provide burn survivors with access to the LIBRE Profile app to help them monitor their social recovery and connect with targeted real-time resources and support,” adds Slavin.

Roger O. Smith’s team from the Rehabilitation Research Design & Disability (R2D2) Center at the University of Wisconsin-Milwaukee is developing a set of apps that rate and display the accessibility of public buildings to promote equitable community participation.

Smith says the i2I training provided clarity. Among other things, it helped the researchers identify stakeholders, product benefits and competitors. They were also able to establish regulations and reimbursement strategies and develop an action plan for moving forward.

The Access Ratings for Buildings (AR-B) project will soon roll out community engagement events to assist in populating the community database. AR-B has partnered with the 2020 Democratic National Convention with plans to be the official accessibility app used during the conference, and provide people with disabilities a diverse assortment of building reviews they may use to determine which ones meet their needs.

“Programs such as IMPACT provide participants with a guided entrepreneurship experience to maximize the potential and marketability of their product,” says Smith. “In turn, the product has greater chance of being distributed to the public and benefit the customers who need them.”

“We at SHRS have been very successful at assistive technology development and transfer as well as increasing technology transfer activities through partnerships,” adds Pearlman. “We are pleased to be able to apply similar approaches to a national network of NIDILRR grantees and provide the resources and support they need to succeed.” ■



Juliana Vazquez works hard and plays hard. In 2019, she earned an undergraduate degree in Health Information Management (HIM) while leading Pitt's soccer team to its first Atlantic Coast Conference match win in three years.

Today, she's playing professional soccer with the Puerto Rico Sol FC—and working toward her master's degree in Health Informatics (MSHI). All thanks to a new online program through SHRS's HIM Department.



Like any working professional, Vazquez's schedule is hectic. She trains twice a day, five days a week and competes in one match per week.

"The online format allows me to choose my own school schedule and allocate time as I see fit," says Vazquez. "The professors are always available for a phone call, an email or even a video chat if I need help or have questions."

According to HIM Assistant Professor Andi Saptano, online delivery of this graduate program helps any working professional up their game.

"HIM professionals are the heartbeat of any health care organization," notes Saptano. "Many prospective students are in leadership positions at hospitals, physician practices or insurance companies, and it's difficult for them to step away from their jobs in order to earn an advanced degree."

The online MSHI, introduced in January 2020, offers the same content as its on-campus equivalent. "It's a convenient program that allows HIM professionals to gain a whole new skill set without interrupting their careers," Saptano continues.

MSHI students select from four tracks—General Health Informatics, Data Science, Registered Health Information Administrator (RHIA) and Health Care Supervision and Management.

Leming Zhou, associate professor and MSHI program director, says the Pitt program is unlike others of its kind.

"Some universities offer HI degrees, but the content is not specific to the health care industry," he explains. "Their students might be required to take Data Management courses that originate in the Department of Computer Science, for example."

"At SHRS, we draw on our expertise in health informatics," he continues. "That is our focus and our expertise. We've developed a curriculum that is very fine-tuned to the current—and future—needs of health informatics professionals."

The online MSHI utilizes a "flipped classroom" technique, requiring students to complete readings on their own prior to an hour-long live session once a week.

Saptano says this greatly enhances the students experience.

"When the entire cohort comes together for a video conference, we have a very lively discussion," says Saptano. "It's very interactive!"

"The weekly sessions are a great opportunity for me to check in with my professors," adds Vazquez. "It is easy to communicate and, in my opinion, is equivalent to in-person classroom sessions in that we can ask questions, get answers and pose ideas we may have."

Although she is following the Data Science track, Vazquez believes the MSHI program will prepare her for any path in the field of health information management.

Zhou points out that the rapidly changing health care environment demands that HIM professionals keep up with new technology and practices. "Health-related data is growing exponentially, creating challenges for managers in health care institutions in how to store, analyze and use the vast amounts of information available to them," says Zhou.

He notes that new online certificate programs also help working professionals gain new knowledge in specific areas such as Health Data Analytics, Cybersecurity, Health Informatics Leadership and Revenue Cycle Management.

"The certificate programs provide a way for working HIM professionals to gain access to new trends and information in a relatively short period of time," says Zhou. He notes that students can apply the credits they earn from a certificate program to a master's degree down the road.

"Whether a student is enrolled in an online or in-person class, the MSHI or a certificate program, they will have the opportunity to work with the most amazing professors," continues Vazquez. "They are passionate, experienced, inclusive, patient and accommodating. They care deeply about their students and the future of health care. They have contributed immensely to my education and for that, I am forever grateful." ■

New classes for the master's degree and certificate programs in Health Informatics are now forming for the summer and fall 2020 semesters. For more information about curriculum, requirements or learning outcomes, visit <https://online.shrs.pitt.edu/>.



NEW TECHNOLOGY IN THE HANDS OF PAs

Medical ultrasound imaging has been a reliable diagnostic tool for more than 50 years. But recent developments have changed the way the technology looks, the way it is used—and who is using it.

A redesigned Point of Care Ultrasound (POCUS) machine is a far cry from the traditional ultrasound device that typically occupies a diagnostic suite in any hospital and requires a specially trained technician to operate. It's significantly more compact than POCUS models introduced a few years ago. They were the size of laptops and could be rolled into a patient's room, much like an EKG machine.

The new POCUS is a hand-held device with a single probe that connects to a smartphone or tablet and can be used in a variety of locations, including at a patient's bedside. It fits in the lab coat pocket of someone who is on the front lines of medical care—like a licensed physician assistant (PA).

According to Physician Assistant Susan Graff (MS '12), it is revolutionizing patient care.

"I work with critically ill patients at UPMC Presbyterian and UPMC Magee-Womens Hospital. Often questions arise that a physical exam simply cannot answer," explains Graff. "Maybe I suspect a blood clot in the patient's vein, or fluid on the lungs."

"I don't have to compromise the patient's health by waiting for a technician to come, or rely on anyone else for answers," she continues. "I use a hand-held POCUS to get answers right on the spot. I can then consult with the doctor on call and begin immediate treatment."

The use of POCUS began in trauma and emergency care settings but has expanded to other specialties ranging from internal medicine to obstetrics.

Although the hand-held devices can be found in some clinical settings, its use is not widespread. Yet.

"Medical schools are beginning to train their students in the use of hand-held POCUS, but it's not always included in the training of other health care professionals like PAs," says Mary Allias, assistant professor, Department of Physician Assistant Studies.

"Here at Pitt, we want our PA students to be able to provide cutting-edge care. That's why we are adding POCUS training to our curriculum in the summer of 2020," she continues.

Graff, also an adjunct assistant professor in Pitt's PA program, says POCUS technology was cost-prohibitive even five years ago. "The size and affordability of today's model makes it a dream come true for PA educators."

She notes that by using POCUS in the classroom, students gain a greater understanding of the human body. "PA students have always been taught to use a stethoscope to listen carefully to a patient's heartbeat," says Graff. "Imagine having the opportunity to actually watch the heart that creates those sounds."

Allias and Graff agree that at this time, it's unclear how the new technology may impact the cost of providing health care services. "Our role as educators is to ensure our students are keeping pace with the latest diagnostic techniques, like POCUS," says Graff. "We want our students to be armed with this kind of knowledge and experience so they stand out as the most sought-after candidates in their field."

PA Chair and Assistant Professor David Beck welcomes the new training. "By embracing this technology, we are preparing our graduates to work at the top of their licenses in ways that only a few PAs can," says Beck.

"This training will make our graduates more competitive in the marketplace," adds Allias. "But more importantly, it will allow them to provide a higher level of care to their patients." ■

"POCUS training gives our students a valuable new skillset and most certainly enriches the quality of our curriculum," says Adjunct Assistant Professor Susan Graff.





HAPPY 10TH ANNIVERSARY, PT-CTRC!

CELEBRATING THE EVOLUTION OF RESEARCH AND COLLABORATION



Sara Piva, David Wortman, Joseph Mancino Jr., Kathryn Brown, Debra Voss and Alexandra Gil (seated).

Faculty researchers from the Department of Physical Therapy (PT) fondly recall the early days of the Physical Therapy Clinical and Translational Research Center (PT-CTRC) when they operated out of a tiny space in Forbes Tower. “We jokingly said we were conducting research in a closet,” recalls PT-CTRC Founding Director and Professor G. Kelley Fitzgerald.

Since 2009, thanks to a partnership with the University of Pittsburgh Clinical and Translational Science Institute (CTSI), the lab has evolved into a sprawling 6,000-square-foot facility in Bridgeside Point with four full-time physical

therapists who provide consistent, high-quality physical performance testing and rehabilitation intervention to clinical and translational investigators from various departments across the university.

“CTSI focuses on supporting multidisciplinary collaborations that advance research and its translation to practice. We worked with SHRS leadership and identified physical therapy research as a field that could be accelerated through broader institutional support and catalyzing new research collaborations,” says Steven E. Reis, MD, associate vice chancellor for Clinical Research, Pitt Health Sciences, and founding director of CTSI.

“The PT-CTRC does just that. It provides research resources and serves as a center for collaborators to come together to conduct state-of-the-art research and to test novel methods to implement research findings into practice,” Reis continues.

As administrative director of the PT-CTRC, Assistant Professor Alexandra Gil helps to facilitate the research projects. She says the success of the PT-CTRC is ensured by a wonderful team of experienced physical therapists who are able to combine patient-centric care with the

delivery of research procedures with high fidelity. This approach has promoted continued collaboration with the University’s Medical School, the departments of Psychiatry, Orthopedics and Physical Medicine and Rehabilitation, as well as investigators from other universities.

“Collaboration adds to the depth and caliber of all of our research,” notes Gil.

“The beauty of the PT-CTRC is that we have been able to conduct small studies that are very successful, and turn them into very large, multi-site studies that are funded by renowned research organizations such as the National Institutes of Health (NIH) and the Patient-Centered Outcomes Research Institute (PCORI),” says Fitzgerald.

Associate Professor Sara Piva, who was the founding co-director of the lab with Fitzgerald, credits the PT-CTRC with helping to launch her research career. “I was a junior investigator working on several pilot studies relating to patients with total knee replacement when the facility opened,” says Piva. “Without having the extensive resources, it would have been very challenging to complete my studies and receive significant funding to do much larger randomized trials. The PT-CTRC made it much easier.”

“The umbrella of CTSI also helped me utilize UPMC Montefiore CTSC for needle biopsies to obtain muscle tissue in another study in patients with rheumatoid arthritis,” adds Piva. “Because the hospital is also a partner of CTSI, I had access to their medical facilities for my study. It was a very efficient process.”

For Professor Jennifer Brach, a pilot study conducted at the lab early in her career helped her collect the preliminary data that was necessary to secure a larger Research Project (R01) grant from the NIH. Her five-year-long PRIMA (Program to Improve Mobility in Aging) study is currently in its final phase. The findings, expected later this year, will provide evidence for the added value of task-specific timing and coordination training in promoting walking ability in older adults.

Ongoing research to improve the quality of life for patients with knee osteoarthritis (OA) recently culminated in the presentation of the Academy of Orthopaedic Physical Therapy’s 2019 Rose Award to Fitzgerald and his Pitt colleagues, Assistant Professors Allyn Bove and Christopher Bise, and Dr. Kenneth Smith, Pitt School of Medicine professor of Medicine and Clinical and Translational Science. Fitzgerald’s most recent study, which began in the PT-CTRC, examines the clinical effectiveness of physical therapy booster sessions for patients with knee osteoarthritis.

“It’s common for individuals to go to PT for a certain number of treatments and then be released with instructions to follow an exercise program at home,” explains Fitzgerald. “But research shows that, over time, the beneficial effects of PT start to decline.”

In his booster study, Fitzgerald is examining the effectiveness of holding back some of the physical therapy sessions that insurance would typically cover and bringing patients back to PT for a booster visit every three months.

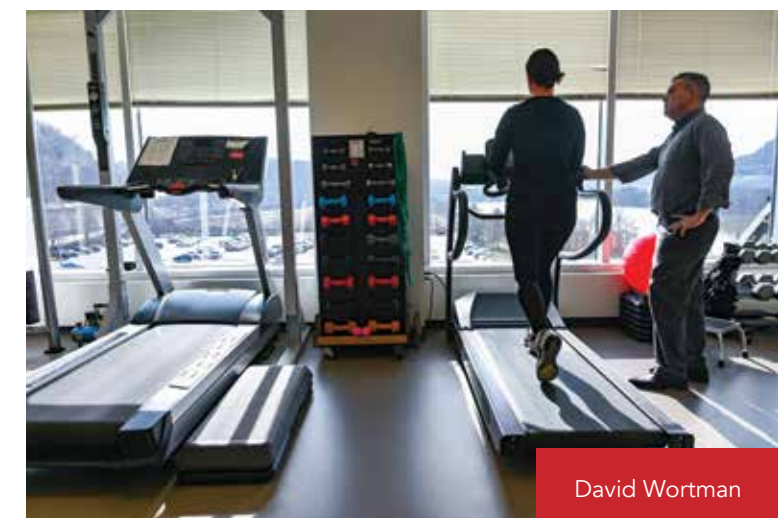
“We’re finding that when patients are treated with a booster session of physical therapy, they do not experience a decline, but in fact are still doing well two years later,” reports Fitzgerald. “Our study indicates that this type of intervention will be more cost effective in the long run, with less money spent on knee-related medical care.”

Fitzgerald hopes to start using booster sessions for knee OA at the UPMC Centers for Rehab Services in the near future.

“This is how we measure the success of the PT-CTRC ... seeing pilot studies evolve into large clinical trials, and eventually, evidence-based practice being implemented in the real world,” Fitzgerald concludes. ■



Kathryn Brown



David Wortman

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SHRS Standings

in 2021 *U.S. News & World Report* Survey
of Best Graduate Schools

#1

PHYSICAL THERAPY

#3

OCCUPATIONAL THERAPY

#3

SPEECH-LANGUAGE PATHOLOGY

#7

AUDIOLOGY



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Pittsburgh

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Rehabilitation Sciences