



Updates from COBRE PI, Dr. Nick Stergiou

Dr. Stergiou became the President of the American Society of Biomechanics. Dr. Stergiou also published two books over the last year, *Advice for the Novice Investigator: Examples Taken from Movement Science*, and *Biomechanics and Gait Analysis*. Both books can be found on Amazon.

Stories

Phase II Graduation for Junior Investigator Dr. Jorge Zuniga

During the first year of Phase II, Research Project Lead, Dr. Jorge Zuniga, and Core Director, Dr. Brian Knarr received an NIH R01 award for \$1.5 million in funding. This NIH Research Project Grant (R01) will fund research into changes in neural activity in children following regular usage of a 3D-printed prosthetic arm. "Essentially what we'll do with this research study is to try and look at their brain and see how the brain of young children adapt to the use of our prosthesis," Zuniga said.

Due to Dr. Zuniga graduating by receiving independent funding from the COBRE, his research project has been replaced with Dr. Carolin Curtze. Junior Investigator, Dr. Carolin Curtze's research project is titled, *Visual control of locomotion in people with Parkinsons disease*.

Publication In Science

Junior Investigator, Dr. Philippe Malcolm was the co-author for an article in *Science*. The project focused on reducing metabolic cost of walking and running. Look for the full story in the *Division of Biomechanics and Research Development's Fall Annual Newsletter*.

Upcoming & Recent Events

- **The Fifth Annual Conference in Human Movement Variability and First Annual Great Plains Biomechanics Conference** was held Friday, Sept. 4, 2020. Look for news about the conference in the next eNewsletter.
- **SAVE THE DATE** - May 20-21, 2021 is the Sixth Annual Conference in Human Movement Variability and Second Annual Great Plains Biomechanics Conference.
- **The Nonlinear Analysis Core** is offering virtual webinars on various forms of entropy. Please visit the cobre.unomaha.edu website for further information.

Research Cores

The MOVECENTR Has Three Research Cores

Machining & Prototyping Core

Dr. Brian Knarr, Core Director

Contact: bmchmpcore@unomaha.edu

The Machining and Prototyping Core Facility involves the use of three major facilities within the University of Nebraska at Omaha Biomechanics Research Building: The Machine Shop, Design Studio, and the 3D Printing Laboratory. The most basic function of the Core is to provide services that utilize these spaces and their personnel and equipment. These services are for professional in the University of Nebraska system, the local area, but also to people outside our state to progress their research or other projects. This core can design, prototype, manufacture and repair, maintain, or install a wide range of devices and instrumentation.

Movement Analysis Core

Dr. Sara Myers, Core Director

Contact: bmchmovan@unomaha.edu

The Movement Analysis Core provides resources, education, advisement and services related to the analysis of human movement. Equipment such as motion capture, dynamometry, electromyography (EMG), electroencephalography, functional near-infrared spectroscopy, virtual reality and high-speed digital video are provided. Contact the core for a comprehensive PDF of our facilities, resources and services.

Nonlinear Analysis Core

Dr. Jenna Yentes, Core Director

Contact: bmchonan@unomaha.edu

The Nonlinear Analysis Core provides resources and services necessary for innovative analysis of human movement. These methods go beyond averages by looking at the time-varying characteristics of a time signal. The Core provides access to a multitude of nonlinear analysis tools, assistance in experimental design, data processing, quality assurance, interpretation and dissemination. The Core is also actively exploring and validating new techniques and algorithms for future use. In addition to our nonlinear methods, standard analyses can also be performed.

Featured Collaborative Research Core

September's Featured Collaboration Research Core: Human Subjects Core, Boys Town National Research Hospital

Human Subjects Core

Dr. Karla McGregor, Core Director

Contact: karla.mcgregor@boystown.org

The Human Subjects Core (HSC) provides clinical measurement expertise; human subjects recruitment support facilitated by a proprietary database of > 10,000 research volunteers; a wide variety of community outreach activities and talks; as well as regulatory training and reports for Boys Town's 20+ labs.

The HSC also designed, built, and continues to grow its Clinical Measures Database. This database includes a broad battery of assessment and intake data collected since the CPCC's inception from over 600 research participants.

University of Nebraska at Omaha
College of Education, Health, and Human Sciences

Center for Research in Human Movement Variability (MOVCENTR)

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