Joint Department of

BIOMEDICAL ENGINEERING

UNC CHAPEL HILL | NC STATE UNIVERSITY

Coulter Seminar Series Presents

Rehabilitation Engineering

Using Dynamic Biplane Radiography to Measure Skeletal Kinematics for Orthopaedic Applications

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Dr. Anderst was born and raised in the state of Wisconsin. He earned a B.S. in Mechanical Engineering from the University of Notre Dame. He then pursued graduate studies in Human Performance, specializing in Biomechanics, at Indiana University. After earning his M.S. degree and passing his PhD qualifying exams, he quit graduate school for a "once in a lifetime" opportunity to work under the direction of Scott Tashman, who had recently constructed the first biplane radiography system, at Henry Ford Health System in Detroit, Michigan. After 10 years in Detroit, Dr. Tashman and Anderst were recruited to build a second-generation imaging system and to continue their research at the University of Pittsburgh. Dr. Anderst subsequently completed his PhD in Bioengineering at the University of Pittsburgh while working full-time in the Biodynamics Lab. Dr. Anderst is currently an Associate Professor in Orthopaedic Surgery and he has been the Director of the Biodynamics Lab for the past 8 years. Dr. Anderst's research focuses on the effects of injury, disease, rehabilitation, and age on dynamic joint function. His work has been funded by the NIH, including R03, R21, R01, and U19 grants, the Department of Defense, industry, and foundations. His collaborators include faculty from the departments of Orthopaedic Surgery, Physical Therapy, Physical Medicine and Rehabilitation, Sports Medicine, Prosthetics and Orthotics, and Bioengineering.

ABSTRACT

Dynamic biplane radiography (DBR) has emerged as the gold-standard for measuring in-vivo skeletal kinematics during physiological loading. This seminar will begin with an introduction to DBR technology, discussion of the system strengths and limitations, and a general overview of previous research applications and labs that use the technology. The second half of the presentation will focus on specific research studies that used DBR to measure kinematics and arthrokinematics of the knee, ankle, lumbar spine, cervical spine, hip, shoulder, thumb, and transfemoral amputees. The seminar will be of interest to students and faculty who have interest in human movement analysis, orthopaedic surgery, and radiographic image acquisition and analysis.

CLEAR Core
Closed Loop Engineering for Advanced Rehabilitation
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Video conferenced to
321 MacNider Hall (UNC)