WELCOME TO MARC

The Motion Analysis Research Center, or MARC, at Samuel Merritt University is a state of the art laboratory designed to advance the study of human movement in education, research, and patient care. Opened in late 2013, the 2,000-square-foot facility is the only motion laboratory in the Bay Area shared by healthcare experts from a variety of disciplines to study human movement and performance.

SMU faculty and students use the MARC to develop evidence-based strategies to treat patients, alleviate pain, and improve the human condition.

“The MARC allows us to diagnose, correct, and even prevent future problems from the perspective of an objective scientific investigation,” said professor Drew Smith, an expert in human motion analysis and director of the center.

Originally founded in 1909, Samuel Merritt University is a fully accredited health sciences institution located in Oakland, California. The University offers degrees in nursing, occupational therapy, physical therapy, physician assistant, and podiatric medicine. Samuel Merritt University is an affiliate of Sutter Health and Alta Bates Summit Medical Center.
FEATURES

The MARC is equipped with state-of-the-art equipment for measuring three-dimensional motion, forces, pressures, balance, and muscle function. It supports the University’s teaching programs along with faculty and student research.

The following is a list of the physical resources available in the MARC:

QUALISYS 9 CAMERA MOTION CAPTURE SYSTEM
Featuring Qualisys Tracking Manager (QTM) software
The configuration in the MARC includes nine Oqus digital 1.3 MP video cameras capable of speeds up to 500 fps. The system includes 64 analog channels for synchronizing with force platforms, EMG, and other analog devices.

VISUAL 3D
Visual3D is the premier research software product for 3D motion capture data analysis and modeling and is used by researchers and clinicians worldwide for assessments, rehabilitation, neuroscience, engineering, robotics, sports-performance, injury prevention, equipment manufacture, orthopedics, prosthetics, animal studies, disability assessments, and more.

AMTI FORCE PLATFORMS
For more than 30 years, major orthopedic manufacturers, testing laboratories, universities and research hospitals worldwide have relied on AMTI to provide products that stand up to our hard-earned reputation of quality and reliability.

DELSYS WIRELESS ELECTROMYOGRAPHY (EMG) SYSTEM
This revolutionary hybrid EMG/Movement sensor with motion artifact suppression (patent pending) provides an unprecedented combination of data in a reliable manner.

NOVEL EMED PRESSURE MAPPING SYSTEM
Emed® systems accurately measure foot pressure and body weight in static and dynamic modes. Recording starts automatically when the subject’s foot contacts the platform.

TEKSCAN PRESSURE MAPPING SYSTEM
The F-Scan system provides dynamic pressure, force, and timing information for foot function and gait analysis. Information obtained from the F-Scan is used in real-world applications, such as designing and testing orthotics, offloading diabetic feet, and evaluating footwear and techniques in elite athletes.

ZENOS GAIT WALKWAY
ProtoKinetics Zeno Walkway detects and collects pressure data during static and dynamic balance and gait assessment. The Zeno Walkway contains a 16-level pressure sensing pad and circuitry inside a unique low profile housing.

NEUROCOM BALANCE MASTER
The SMART Balance Master® provides objective assessment and retraining of the sensory and voluntary motor control of balance with visual biofeedback on either a stable or unstable support surface and in a stable or dynamic visual environment.

ABOUT

The MARC will serve as a teaching center on motion analysis for faculty and students from the University’s California School of Podiatric Medicine (CSPM), Department of Occupational Therapy, Department of Physical Therapy, and School of Nursing.

Healthcare practitioners across several fields will also use the center to study biomechanics, gait, upper and lower body movement, and the effect of treatment modalities, and then apply what they learn in clinical practice for the benefit of patients. Furthermore, the MARC will be a venue for clinical trials of new products and interventions designed to treat movement disorders.

EXPERT

Andrew “Drew” Smith, PhD, the director of the center, has more than 35 years of experience in the field of movement analysis and kinesiology, and has worked internationally in academic settings, clinical settings, and research labs. His primary area of research is in gait and balance, in particular neuromuscular control of motion across a wide spectrum of movements. Before coming to SMU, Smith was an associate professor and associate head of the Department of Health and Physical Education at the Hong Kong Institute of Education.
THANK YOU

The MARC was funded entirely by philanthropic support. Foundations, corporations, employees, alumni, board members, and friends of Samuel Merritt University contributed more than $600,000 to renovate the space and purchase the equipment.

QUESTIONS?
CONTACT US

Contact:
Drew Smith, PhD
MARC Director
asmith3@samuelmerritt.edu
510.869.6511 x3752
www.samuelmerritt.edu/marc