Stanford



Gary Glover

Professor of Radiology (Radiological Sciences Lab) and, by courtesy, of Psychology and of Electrical Engineering

Bio

BIO

My research interests encompass the physics and mathematics of imaging with Magnetic Resonance (MR). My research is directed in part towards exploration of rapid MRI scanning methods using spiral and other non-Cartesian k-space trajectories for dynamic imaging of function. Using spiral techniques, we have developed MRI pulse sequences and processing methods for mapping cortical brain function by imaging the metabolic response to various stimuli, with applications in the basic neurosciences as well as for clinical applications. These methods develop differential image contrast from hemodynamically driven increases in oxygen content in the vascular bed of activated cortex (Blood Oxygen Level Dependent, or BOLD contrast), using pulse sequences sensitive to the paramagnetic behavior of deoxyhemoglobin or to the blood flow changes. Other interests include multimodal imaging using fMRI in conjunction with EEG, fPET, fNIRS, and neuromodulation with tDCS, tACS, TMS and HiFU. Investigating viscoelasticity of human brain using MR Elastography is of interest as an alternative to BOLD contrast for depicting brain activation.

ACADEMIC APPOINTMENTS

- Professor, Radiology
- Professor (By courtesy), Electrical Engineering
- Professor (By courtesy), Psychology
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

HONORS AND AWARDS

- Steinmetz Award, General Electric Company (1985)
- Fellow, American Institute for Medical and Biological Engineering (1997)
- Fellow, ISMRM (2000)
- Gold Medal, ISMRM (2000)
- Outstanding Researcher Award, RSNA (2001)
- Member, National Academy of Engineering (2013)
- Lauterbur Lecture: MRI in Yon Tines of Yore, International Society of Magnetic Resonance in Medicine (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Eta Kappa Nu (1964 - present)

- Member, IEEE (1965 - 1980)
- Member, American Physical Society (1969 - 1977)
- Member, ISMRM (International Society for Magnetic Reonance in Medicine (1985 - present)
- Subcommittee on MR nomenclature and phantom development, American College of Radiology (1988 - 1996)
- Member, American Association of Physicists in Medicine (AAPM) (1990 - 1996)
- Nominator, Nobel Prize in Physiology and Medicine (1992 - 2002)
- Member, Organization for Human Brain Mapping (2003 - present)
- Advisory Board, Tsinghua University Center for Biomedical Imaging (2011 - present)
- Member, National Academy of Engineering (2013 - present)

PROFESSIONAL EDUCATION

- PhD, University of Minnesota , Electrical Engineering (1969)

PATENTS

- Gary Glover. "United States Approximately 50 issued in Biomedical Imaging"

LINKS

- My Lab Site: http://rsl.stanford.edu/glover

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research is devoted to the advancement of imaging sciences for applications in diagnostic radiology. We collaborate closely with departmental clinicians and with others in the school of medicine, humanities, and the engineering sciences.

Presently my research is directed in part towards exploration of rapid scanning methods using spiral and other non-Cartesian k-space trajectories. Using spiral techniques, we have developed MRI pulse sequences and processing methods for mapping cortical brain function by imaging the metabolic response to various stimuli, with applications in the basic neurosciences as well as for clinical applications. These methods develop differential image contrast from hemodynamically driven increases in oxygen content in the vascular bed of activated cortex, using pulse sequences sensitive to the paramagnetic behavior of deoxyhemoglobin or to the blood flow changes. Multimodal imaging and neuromodulation combines fMRI with EEG, fPET, fNIRS, TES (TACS, TDCS, TMS) and HIFU.

CLINICAL TRIALS

- Magnetic Resonance Imaging of Breast Cancer, Recruiting

Teaching

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biophysics (PhD Program)
- Neurosciences (PhD Program)