## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

| NAME | POSITION TITLE |
|---|---|
| Garry E. Gold | Associate Professor<br>Department of Radiology and (by courtesy)<br>Bioengineering and Orthopedics |
| eRA COMMONS USER NAME<br>GOLD.GARRY | |

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

| INSTITUTION AND LOCATION | DEGREE *(if applicable)* | YEAR(s) | FIELD OF STUDY |
|---|---|---|---|
| Stanford University, Stanford CA | B.S. | 1986 | Electrical Engineering |
| Stanford University, Stanford CA | M.S. | 1988 | Electrical Engineering |
| Stanford University, Stanford CA | M.D. | 1992 | Medicine |

A. **Personal Statement**

This proposal is to support a conference titled "Post-joint Injury Osteoarthritis Conference II". The goal of the proposed conference is to improve diagnosis and treatment of joints after injury, which is a significant public health problem. I will speak at the conference on "Clinical Evaluation of Articular Cartilage Proteoglycans using MRI", which is an important biomarker for studies looking at initiation and development of osteoarthritis in this population. I fully support and endorse this meeting and it's goals.

B. **Positions and Honors.**

**Positions**

1988-1989 Research Assistant, Department of Electrical Engineering, Stanford University.
1988-1989 Research Assistant, Department of Radiology, Stanford University Medical School.
1990-1991 Research Assistant, Department of Computer Science, Stanford University.
1991-1992 Research Assistant, Department of Radiology, Stanford University Medical School.
1992-1993 Resident, Department of Internal Medicine, Kaiser Medical Center, Santa Clara.
1994-1998 Resident, Department of Radiology, Stanford University Medical Center.
1995-1997 Research Fellow, Department of Radiology, Stanford University.
1998-1999 Osteoradiology Fellow and Clinical Faculty, Department of Radiology, UCSD.
1999-2006 Assistant Professor, Department of Radiology, Stanford University.
2006- Associate Professor, Department of Radiology and (by courtesy) Bioengineering and Orthopedics, Stanford University.

**Honors**

1986 Tau Beta Pi Engineering Honor Society
1988 Hewlett Packard Award for Outstanding Engineering Design Project
1991 Stanford Medical Scholars Research Grant
1992 Stanford Medical School Dean's Award for Research
1993 Kaiser Residency Program Research Award
1994 NIH Research Resident's Award
1995 International Society of Magnetic Resonance in Medicine Young Investigator Award
1996 Radiological Society of North America Roentgen Resident/Fellow Research Award
Radiological Society of North America Certificate of Merit (co--author)
1997 International Society of Magnetic Resonance in Medicine Young Investigator Award (co--author)
American Roentgen Ray Society President's Award in Radiology
1998 Veteran's Affairs Young Investigator Award
1999 Society of Body Computed Tomography and MR Cum Laude Award
Medical Device Challenge Invention Challenge Winner
2001 Society of Body Computed Tomography and MRI Lauterbur Award (Best MRI Paper)
2002 Society of Body Computed Tomography and MRI Lauterbur Award
American Roentgen Ray Society President's Award in Radiology (Senior Author)

Society of Body Computed Tomography and MRI Lauterbur Award
2003 American Roentgen Ray Society President's Award (Senior Author)
2004 Society of Body Computed Tomography and MRI Cum Laude Award
2005 Society of Body Computed Tomography and MRI Lauterbur Award (Co-author)
2006 Society of Body Computed Tomography and MRI Lauterbur and Moncada Awards
2007 International Skeletal Society President's Medal
2008 Society of Body Computed Tomography and MRI Lauterbur and Moncada Awards
2009 Society of Body Computed Tomography and MRI Lauterbur and Cu-Laude Awards

**Societies**
ISMRM, RSNA, ARRS, ARRS, ISS, SCBT/MR, OARSI

C. **Selected Publications** (Selected from 85 published or in-press papers)

**Most relevant to the current application**

1. B. Hargreaves, **G. Gold**, C. Beaulieu, S. Vasanawala, D. Nishimura, J. Pauly. Comparison of new sequences for high-resolution cartilage imaging. *Magn Res Med* 49(4): 700-709, April 2003.
2. **G. Gold**, T. McCauley, M. Gray, D. Disler. What's new in cartilage? *Radiographics* 2003; 23:1227-42.
3. N. Bangerter, B. Hargreaves, S. Vasanawala, J. Pauly, **G. Gold**, D. Nishimura. Analysis of Multiple Acquisition SSFP. *Magn Reson Med,* 2004 May;51(5):1038-47.
4. **G. Gold**, E. Han, J. Stanisby, G. Wright, J. Brittain, C. Beaulieu. Musculoskeletal MR Imaging at 3.0 Tesla: Relaxation Times and Image Contrast. *Am J Roentgenol*, 2004 Aug:183:343-351.
5. P. R. Kornaat, S. B. Reeder, S. Koo, J. H. Brittain, H. Yu, T. Andriacchi, and **G. E. Gold.** MR imaging of articular cartilage at 1.5T and 3.0T: Comparison of SPGR and SSFP sequences. Osteoarthritis Cartilage. 2005 Apr; 13(4): 338-44.
6. **G. Gold,** T. Besier, C. Draper, D. Asakawa, S. Delp, G. Beaupre. Weight-bearing MRI of Patelofemoral Cartilage Contact Area. *J Magn Res Im* 2004 :526-530.
7. T. F. Besier, C. E. Draper, **G. E. Gold**, G. S. Beaupre and S. L. Delp. Patellofemoral Joint Contact Area Increases with Flexion and Weight Bearing. J Ortho Res 2005 Mar; 23(2): 345-503.
8. **G. E. Gold**, B. A. Hargreaves, S. S. Vasanawala, J. D. Webb, J. H. Brittain, A. S. Shimakawa, C. F. Beaulieu. Fluctuating Equilibrium MR Imaging of Articular Cartilage in the Knee: Initial Experience in 10 Healthy Volunteers. Radiology. 2006; 238: 712-718.
9. **G. E. Gold**, S. B. Reeder, H. Yu, P. Kornaat, A. S. Shimakawa, J. W. Johnson, C. F. Beaulieu, J. H. Brittain. Rapid 3D Cartilage MR Imaging at 3.0T with IDEAL SSFP. Radiology. 2006 240(2): 546-51.
10. **G. E. Gold,** R. Busse, C. Beehler, E. Han, A. Brau, P. Beatty, C. Beaulieu. Isotropic MRI of the Knee with 3D-FSE-xeta (eXtended Echo Train Acquisition) – Initial Experience in Healthy Volunteers. *Amer J Roentgen* 2007 May; 188(5): 1287-93.
11. C. A. Chen, W. Lu, C. T. John, B. A. Hargreaves, S. B. Reeder, S. L. Delp, R. L. Siston and **G. E. Gold**. Multi-Echo IDEAL-GRE Water-Fat Separation for Rapid Assessment of Cartilage Morphology—Initial Experience. *Radiology 2009* Aug; 252(2): 561-7.
12. **G.E. Gold**, C. Chen, S. Koo, B. Hargreaves, N. Bangerter. Recent Advances in Cartilage MRI. *AJR Am J Roentgenol 2009* Sep; 193(3): 628-38.
13. E. Starosweicki, N. Bangerter, P. Gurney, T. Grafendorfer, **G. Gold**, B. Hargreaves. In Vivo Sodium Imaging of Human Patellar Cartilage with a 3D Cones Sequence at 3T and 7T. *JMRI – In Press.*

**Additional Publications of importance in the field (in chronological order)**

14. S. Reeder, N. Pelc, M. Alley, **G. Gold.** Rapid Imaging of Articular Cartilage with Steady-State Free Precession and Multi-Point Dixon Fat-Water Separation. *Am J Roentgenol.* 2003; 180:357-362.
15. **G.E. Gold**, B. A. Hargreaves, S. B. Reeder, W. F. Block, R. Bammer, R. Newbould, et al. Balanced SSFP imaging of the musculoskeletal system. J Magn Reson Imaging. 2007 Feb; 25(2):270-8.

## C. Research Support

NIH 1R01EB002524 (Gold) Dates: 9/20/03 – 3/31/14
**Title:** MRI for Early Detection of Osteoarthritis
**Goals:** Improving MRI imaging of morphology and physiology of osteoarthritis
**Role:** Principal investigator

NIH 1R01 EB005790 (Gold) Dates: 9/23/05 – 7/31/10
**Title:** Real-Time MRI and 3D Modeling: Development and Application to Patellofemoral Pain
**Goals:** Improved imaging and modeling of patellofemoral pain
**Role:** Principal investigator.

NIH 5U01-AG019069-04 (Gold) Dates: 9/30/01 – 6/30/12
**Title:** Multi-Center Osteoarthritis Study
**Goals:** Longitudinal study of osteoarthritis
**Role:** Principal investigator on safety sub-contract. Overall project P.I. is Michael Nevitt, Ph.D.

NIH 3R01-AR052861-04S1 (Levenston) Dates 10/1/08-9/30/10
**Title:** Spatiotemporal Progression of Meniscal Degeneration
Goals: Integrate MR imaging methods into the study of menicus degeneration
**Role:** Co-investigator, testing new imaging methods on meniscal specimens

NIH 1R01-AR049792-01 (Andriacchi) Dates: 3/16/04-12/31/12
**Title:** Cartilage Morphology Relative to In-Vivo Knee Function
**Goals:** Cartilage biomechanics in the knee related to gait
**Role:** Co-investigator, imaging cartilage at high resolution with MRI

GE Healthcare (Gold) Dates 4/1/08 – 3/31/13
**Title:** GE-Stanford Radiology Collaborative MR Research Program
Goals: Improved MR Imaging in multiple organ systems
**Role:** Principal Investigator, leader of musculoskeletal team

**Completed Support**

VA Rehabilitation R&D Service (Gold) Dates: 10/1/00-2/1/03
**Title:** Improved MR Imaging of Articular Cartilage
**Goals:** Improve clinical imaging of cartilage using MRI
**Role:** Principal investigator

Whitaker Foundation 176W017 (Gold) Dates: 12/1/00 – 6/1/04
**Title:** Intra-articular Coils for Musculoskeletal MRI
**Goals:** Improving MRI imaging of cartilage and joints with new coil designs
**Role:** Principal investigator, lead project

NIH R01 AR46904 (Macovski) Dates: 9/1/99 – 8/31/04
**Title:** Development of Improved MRI Techniques for Cartilage Injury and Repair.
**Goals:** Design, implementation, and clinical testing of new cartilage imaging methods.
**Role:** Co-investigator, clinical input and sequence design

NIH 1R33 CA95882 (Macovski) Dates: 9/30/02 – 8/31/05
**Title:** A Low-Cost High Quality Pre-polarized MRI Head Scanner.
**Goals:** Design considerations and initial clinical testing of the PMRI system.
**Role:** Co-investigator, provide clinical feedback on new kind of MRI system

NIH 1R01CA92409 (Macovski) Dates: 9/1/01 – 8/31/05
**Title:** Development of a Pre-polarized MRI Extremity Scanner.
**Goals:** Design considerations and initial clinical testing of the PMRI system.
**Role:** Co-investigator, clinical testing of new kind of MRI system

Stanford Bio-X IIP Program (Gold) Dates: 1/1/03 – 12/31/05
**Title:** Modeling Muscles in Contact
**Goals:** Improving musculoskeletal models of muscle using image data
**Role:** Principal investigator, lead project

GSK SPO 35630 (Gold) Dates: 12/01/05 – 11/30/08
**Title:** Sodium MRI at 3.0T for Drug Discovery
**Goals:** Improved sodium MRI of articular cartilage
**Role:** Principal investigator.

Wallenberg Global Learning Network III Grant (Gold) Dates 9/1/05-10/31/08
**Title:** Learning Radiology in Simulated Environments
Goals: Teach student radiographers with simulation
**Role:** Lead Stanford side of project in collaboration with Umea Univ. Sweden