

**BIOGRAPHICAL SKETCH**

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NAME Beaulieu, Christopher F., M.D., Ph.D.	POSITION TITLE Professor of Radiology		
eRA COMMONS USER NAME beaulieu.christopher			
EDUCATION/TRAINING ( <i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i> )			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Shoreline Community College, Seattle, WA University of Washington, Seattle, WA Univ. of Washington School of Medicine, Seattle, WA University of Washington, Seattle, WA	BS MD PhD	1978-80 1980-82 1982-84 1984-89	Pre Medicine Chemistry Medicine Biological Structure

**A. Positions and Honors****Positions and Employment**

- 1989-1990      Transitional Intern, Virginia Mason Medical Center, Seattle, WA  
 1990-1994      Resident in Radiology, Duke University Medical Center, Durham, NC  
 1994-1995      Abdominal Imaging, Clinical Fellow, Stanford University Medical Center, Stanford, CA  
 7/1995-8/1995    Musculoskeletal Imaging, Visiting Fellow, U.C. San Diego/VAMC, San Diego, CA  
 1995-2000      Assistant Professor of Radiology, Divisions of Musculoskeletal and Abdominal Imaging  
 Stanford University Medical Center, Stanford, CA  
 2000-2006      Associate Professor of Radiology, Stanford University Medical Center  
 2003-present     Chief of Musculoskeletal Imaging, Stanford University Medical Center  
 2006-present     Professor of Radiology, Stanford University Medical Center

**Other Experience and Professional Memberships**

- 1986      International Society of Magnetic Resonance in Medicine (Previously SMRM)  
 1994      American Roentgen Ray Society  
 1994      Radiological Society of North America  
 2001      Fellow, Society of Computed Body Tomography and MRI

**Honors (Selected)**

- 1983      Medical Scientist Training Program (M.D.-Ph.D.) Scholarship  
 1988      Alpha Omega Alpha Medical Honor Society  
 1989      Doctor of Medicine with High Honors (Awarded to top 3 students)  
 1997      RSNA Scholars Award  
 1996, 1998, 1999, 2004, Cum Laude Award, Society of Computed Body Tomography and MRI  
 2000      Hounsfield Award, Society of Computed Body Tomography and MRI  
 2001, 2002, 2003 Lauterbur Award, Society of Computed Body Tomography and MRI

**B. Selected peer-reviewed publications** (chronological, selected from 68 publications)

1. Beaulieu, C.F., J.I. Clark, R.D. Brown, M. Spiller, and S.H. Koenig, Relaxometry of calf lens homogenates, including cross-relaxation by crystallin NH groups. *Magn Reson Med*, 1988. 8(1): p. 45-57.
2. Beaulieu, C.F., R.D. Brown, J.I. Clark, M. Spiller, and S.H. Koenig, Relaxometry of lens homogenates. II. Temperature dependence and comparison with other proteins. *Magn Reson Med*, 1989. 10(3): p. 362-72.
3. Koenig, S.H., C.F. Beaulieu, R.D. Brown, and M. Spiller, Oligomerization and conformation change in solutions of calf lens gamma II-crystallin. Results from 1/T1 nuclear magnetic relaxation dispersion profiles. *Biophys J*, 1990. 57(3): p. 461-9.
4. Beaulieu, C.F., X. Zhou, G.P. Cofer, and G.A. Johnson, Diffusion-weighted MR microscopy with fast spin-echo. *Magn Reson Med*, 1993. 30(2): p. 201-6.

5. Zhou, X., Z.P. Liang, G.P. Cofer, C.F. Beaulieu, S.A. Suddarth, and G.A. Johnson, Reduction of ringing and blurring artifacts in fast spin-echo imaging. *J Magn Reson Imaging*, 1993. 3(5): p. 803-7.
6. Beaulieu, C.F., S. Napel, I.Y. Chen, B.L. Daniel, G.D. Rubin, and R.B. Jeffrey Jr. Optimization of CT Parameters for Virtual Colonoscopy. *in 19th Annual Society of Computed Body Tomography and Magnetic Resonance - Awarded Cum Laude*. 1996. Tucson, AZ.
7. Rubin, G.D., C.F. Beaulieu, V. Argiro, H. Ringl, A.M. Norbush, J.F. Feller, et al., Perspective volume rendering of CT and MR images: applications for endoscopic imaging. *Radiology*, 1996. 199(2): p. 321-30.
8. Beaulieu, C.F., R.E. Mindelzun, J. Dolph, and R.B. Jeffrey, Jr., The infraconal compartment: a multidirectional pathway for spread of disease between the extraperitoneal abdomen and pelvis. *J Comput Assist Tomogr*, 1997. 21(2): p. 223-8.
9. Mindelzun, R.E. and C.F. Beaulieu, Using biphasic CT to reveal gastrointestinal arteriovenous malformations. *AJR Am J Roentgenol*, 1997. 168(2): p. 437-8.
10. Sommer, F.G., E.W. Olcott, I. Ch'en, and C.F. Beaulieu, Volume rendering of CT data: applications to the genitourinary tract. *AJR Am J Roentgenol*, 1997. 168(5): p. 1223-6.
11. Beaulieu, C.F., S. Napel, B.L. Daniel, I.Y. Ch'en, G.D. Rubin, I.M. Johnstone, et al., Detection of colonic polyps in a phantom model: implications for virtual colonoscopy data acquisition. *J Comput Assist Tomogr*, 1998. 22(4): p. 656-63.
12. Beaulieu, C.F. and A.L. Ladd, MR arthrography of the wrist: scanning-room injection of the radiocarpal joint based on clinical landmarks. *AJR Am J Roentgenol*, 1998. 170(3): p. 606-8.
13. Paik, D.S., C.F. Beaulieu, R.B. Jeffrey, G.D. Rubin, and S. Napel, Automated flight path planning for virtual endoscopy. *Med Phys*, 1998. 25(5): p. 629-37.
14. Karadi, C., C.F. Beaulieu, R.B. Jeffrey, Jr., D.S. Paik, and S. Napel, Display modes for CT colonography. Part I. Synthesis and insertion of polyps into patient CT data. *Radiology*, 1999. 212(1): p. 195-201.
15. Beaulieu, C.F., R.B. Jeffrey, Jr., C. Karadi, D.S. Paik, and S. Napel, Display modes for CT colonography. Part II. Blinded comparison of axial CT and virtual endoscopic and panoramic endoscopic volume-rendered studies. *Radiology*, 1999. 212(1): p. 203-12.
16. Beaulieu, C.F., D.K. Hodge, A.G. Bergman, K. Butts, B.L. Daniel, C.L. Napper, et al., Glenohumeral relationships during physiologic shoulder motion and stress testing: initial experience with open MR imaging and active imaging-plane registration. *Radiology*, 1999. 212(3): p. 699-705.
17. Paik, D.S., C.F. Beaulieu, R.B. Jeffrey, Jr., C.A. Karadi, and S. Napel, Visualization modes for CT colonography using cylindrical and planar map projections. *J Comput Assist Tomogr*, 2000. 24(2): p. 179-88.
18. Summers, R.M., C.F. Beaulieu, L.M. Pusanik, J.D. Malley, R.B. Jeffrey, Jr., D.I. Glazer, et al., Automated polyp detector for CT colonography: feasibility study. *Radiology*, 2000. 216(1): p. 284-90.
19. Gokturk, S.B., C. Tomasi, B. Acar, C.F. Beaulieu, D.S. Paik, R.B. Jeffrey, Jr., et al., A statistical 3-D pattern processing method for computer-aided detection of polyps in CT colonography. *IEEE Trans Med Imaging*, 2001. 20(12): p. 1251-60.
20. Pelc, J.S. and C.F. Beaulieu, Volume rendering of tendon-bone relationships using unenhanced CT. *AJR Am J Roentgenol*, 2001. 176(4): p. 973-7.
21. Hung, P.W., D.S. Paik, S. Napel, J. Yee, R.B. Jeffrey, Jr., A. Steinauer-Gebauer, et al., Quantification of Distention in CT Colonography: Development and Validation of Three Computer Algorithms. *Radiology*, 2002. 222(2): p. 543-54.
22. Acar, B., C.F. Beaulieu, S.B. Gokturk, C. Tomasi, D.S. Paik, R.B. Jeffrey, Jr., et al., Edge displacement field-based classification for improved detection of polyps in CT colonography. *IEEE Trans Med Imaging*, 2002. 21(12): p. 1461-7.
23. Beaulieu, C.F., D.S. Paik, S. Napel, and R.B. Jeffrey, Jr., Advanced 3D Display Methods, *in* *Atlas of Virtual Colonoscopy*, A.H. Dachman, Editor. 2003, Springer-Verlag: NY. p. 37-44.
24. Hargreaves, B.A., G.E. Gold, C.F. Beaulieu, S.S. Vasanaawala, D.G. Nishimura, and J.M. Pauly, Comparison of new sequences for high-resolution cartilage imaging. *Magn Reson Med*, 2003. 49(4): p. 700-9.
25. Sundaram, P., C.F. Beaulieu, D.S. Paik, P. Schraedley, and S. Napel, CT colonography: does improved through-plane (Z) resolution aid computer-aided detection polyp detection? *Med Phys* 30:2663-2674, 2003
26. Paik DS, Beaulieu CF, Rubin GD, Acar B, Jeffrey RB, Jr., Yee J, Dey, J, Napel S. Surface Normal Overlap: a computer-aided detection algorithm with application to colonic polyps and lung nodules in helical CT. *IEEE Trans Med Imaging* 23:661-75, 2004.

27. Mani A, Napel S, Paik DS, Jeffrey RB, Jr., Yee J, Olcott EW, Prokesch R, Davila M, Schraedley-Desmond P, Beaulieu CF. CT colonography: feasibility of computer-aided polyp detection in a "First Reader" paradigm. *J Comput Assist Tomogr* 28:318-26, 2004.
28. Gold GE, Han E, Stainsby J, Wright G, Brittain J, Beaulieu CF. Musculoskeletal MR imaging at 3.0 Tesla: relaxation times and image contrast. *AJR Am J Roentgenol* 183:343-51, 2004.
29. Bilello M, Gokturk SB, Desser T, Napel S, Jeffrey Jr. RB, Beaulieu CF. Automatic detection and classification of hypodense hepatic lesions on contrast-enhanced venous-phase CT. *Medical Physics* 31, 2584-93, 2004.
30. Li P, Napel S, Acar B, Paik D, Jeffrey Jr. RB, Beaulieu CF. Automatic registration of colonic polyps between supine and prone scans in CT colonography. *Medical Physics* 31:2912-2923, 2004.
31. Gold GE, Suh B, Sawyer-Glover A, Beaulieu CF. Musculoskeletal MR imaging at 3.0 Tesla: initial clinical experience. *AJR Am J Roentgenol* 183:1479-1486, 2004.
32. Vasanawala SS, Hargreaves BA, Pauly JM, Nishimura DG, Beaulieu CF, Gold GE. Rapid musculoskeletal MR imaging with phase-sensitive steady state free precession. *AJR Am J Roentgenol* 184:1450-5, 2005. *President's Award, ARRS 2004 Annual Residents in Radiology Awards Competition*.
33. Gold GE, Fuller SE, Hargreaves BA, Stevens KJ, Beaulieu CF. Driven equilibrium magnetic resonance imaging of articular cartilage: initial clinical experience. *J Magn Reson Imaging* 2005; 21: 4: 476-81
34. Gold GE, Hargreaves BA, Reeder SB, Vasanawala SS, Beaulieu CF. Controversies in protocol selection in the imaging of articular cartilage. *Semin Musculoskelet Radiol* 9:161-72, 2005
35. Hwang B, Fredericson M, Chung CB, Beaulieu CF, Gold GE. MRI findings of femoral diaphyseal stress injuries in athletes. *AJR Am J Roentgenol* 185:166-73, 2005
36. Reeder SB, Pineda AR, Wen Z, Shimakawa A, Yu H, Brittain JH, Gold GE, Beaulieu CH, Pelc NJ. Iterative decomposition of water and fat with echo asymmetry and least-squares estimation (IDEAL): Application with fast spin-echo imaging. *Magn Reson Med* 54:636-44, 2005. (Note typographical error in middle initial in journal.)
37. Pappas GP, Blemker SS, Beaulieu CF, McAdams TR, Whalen ST, Gold GE. In vivo anatomy of the Neer and Hawkins sign positions for shoulder impingement. *J Shoulder Elbow Surg* 15:40-9, 2006.
38. Gold GE, Hargreaves BA, Vasanawala SS, Webb JD, Shimakawa AS, Brittain JH, Beaulieu CF. Articular cartilage of the knee: evaluation with fluctuating equilibrium MR imaging--initial experience in healthy volunteers. *Radiology* 2006; 238:712-718.
39. Na JB, Bergman AG, Oloff LM, Beaulieu CF. The flexor hallucis longus: tenographic technique and correlation of imaging findings with surgery in 39 ankles. *Radiology* 236:974-82, 2005.
40. Shi, R, Schraedley-Desmond, P, Napel, S, Olcott, EW, Jeffrey, RB Jr, Yee, J, Zalis, ME, Margolis, D, Paik, DS, Sherbondy, AJ, Sundaram, P, Beaulieu, CF. CT colonography: influence of 3D viewing and features of polyp candidates on interpretation using computer aided detection. *Radiology*, 2006;239:768-776.

## C. Research Support

### Ongoing Research Support

3 RO1CA72023-11 Beaulieu (PI), Napel (Co-PI)

7/1/04-6/30/08

NIH/NCI

Three Dimensional Spiral CT Colonography.

The major goals of this project are to develop and validate new techniques for evaluating the human colon for the presence or absence of polyps using computer aided detection methods applied to spiral CT data.

Role: PI

RO1 EB002524 Gold (PI)

9/1/03-8/31/08

NIAMS

Rapid MRI for Evaluation of Osteoarthritis Dates

The major goals of this project are to develop and validate new MRI pulse sequences for evaluation of articular cartilage injury and repair

Principal Investigator/Program Director (Last, First, Middle): Glazer, Gary M.

Role: Co-Investigator

**Completed Research Support (Within past 3 years)**

Stanford University Bio-X Interdisciplinary Initiative      Beaulieu (PI)      11/1/00-10/31/03  
*Detection of Anomalous Structures in Medical Images*  
The major goal of this project is to develop and apply computer vision techniques to medical imaging data for detection of lung and liver lesions.  
Role: PI