

CURRICULUM VITAE

NAME: SANJIV S. SAMANT

OFFICE ADDRESS: Dept. of Nuclear & Radiological Engineering
University of Florida
Gainesville, Florida 32611
Telephone: (352) 392-1401 ext 348
Fax: (352) 392-3380

HOME ADDRESS: 6280 SW 90th St
Gainesville, FL 32608
Telephone: (352) 374-9652

ACADEMIC DEGREES:

B.Sc.	1983	Dalhousie, Halifax, Nova Scotia, Canada (Physics and Mathematics)
M.Sc.	1985	University of Western Ontario, London, Ontario, Canada (Theoretical Physics)
Ph.D.	1988	University of Western Ontario, London, Ontario, Canada (Physics/Applied Mathematics)

ACADEMIC APPOINTMENTS:

01/91-05/93	Assistant Professor, Department of Radiation Oncology, Dalhousie University, Halifax, Nova Scotia, Canada
06/94-06/98	Adjunct Professional, Baptist Memorial Hospital, Memphis, Tennessee
09/96-06/98	Assistant Professor, Department of Radiation Oncology, University of Tennessee Health Science Center, Memphis, Tennessee
10/96 to present	Adjunct Assistant Professor, College of Biomedical Engineering, University of Tennessee, Memphis, Tennessee
07/98 to 7/05	Assistant Professor, Department of Radiology, University of Tennessee, Memphis, Tennessee
11/98 to 7/05	Assistant Member), Department of Radiological Sciences, Division of Radiation Oncology, St. Jude Children's Research Hospital, Memphis, Tennessee
12/99 to 7/05	Adjunct Professor, Department of Mechanical Engineering, University of Memphis, Memphis, Tennessee
12/99 to 7/05	Adjunct Assistant Professor, School of Biomedical Engineering, University of Memphis, Memphis, Tennessee
01/05 to present	Associate Professor, Nuclear & Radiological Engineering, University of Florida, Gainesville, Florida

CERTIFICATION:

06/93 The Canadian College of Physicists in Medicine (CCPM)

SOCIETY MEMBERSHIPS:

American Association of Physicists in Medicine (1992-present)
Canadian College of Physicists in Medicine (1993-present)
Canadian Organization of Medical Physicists (1992-present)

OTHER APPOINTMENTS:

Reviewer for *Medical Physics* and *Nuclear Instruments and Methods in Physics Research* (since 2003);
Medical and Biological Engineering and Computing (since 2004)
 External reviewer for NIH diagnostic imaging study section, NBIB (Feb 2005)
 Moderator for imaging sessions at annual meetings for American Society for Therapeutic Radiology and
 Oncology 1998 and 2003

CLINICAL DUTIES:

Professional duties: Administrative experience in supervision of physics and dosimetry (5 years)
 QA (Linac/ EPID/ HDR/ CT Sim) (10+ years)
 Dosimetry/ calibration (ion chamber, film, TLD, diodes) (10+ years)
 Brachytherapy (LDR-10+ years; HDR-2.5 years)
 EPID imaging (VEPIDs, flat panel, prototypes) (6 years)
 Treatment planning (5+ years)
 Radiation safety (5 years)

Equipment used: Linacs: Siemens, Varian
 EPID's: Siemens, Varian, Elekta, prototypes
 Scanning system: Wellhofer
 CT Sim: GE Advantage, Elekta ACQsim
 TPS: PLUNC, ROCS, Theratronics, Eclipse (brachytherapy)
 HDR: Nucletron
 ZMED patient localization camera system
 Radionics MMLC

GRANT SUPPORT:

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| 1. | Cancer Treatment and Research Foundation of Nova Scotia
Optimization algorithms in radiotherapy (PI). | \$ 5,000 | 1991-1992 |
| 2. | Dalhousie Faculty of Medical Research Committee
Fractal analysis of ECG data in study of arrhythmia (PI) | \$ 10,000 | 1992 |
| 3. | Nova Scotia Dept. of Economic Development
Software development for fractal generation of ECG data (PI) | \$ 3,000 | 1992 |
| 4. | University of Tennessee, Dept. of Radiation Oncology
"Kinesthetic Charge Detection as a Megavoltage Imaging Detector in Radiotherapy" (PI): student support for
studying alternative portal imaging technology | \$ 25,000 | 1996-1998 |
| 5. | Medical Physics Instrumentation, Inc.
Instrumentation grant for imaging studies (PI) | \$ 6,000/. | 1996-1998 |
| 6. | University of Tennessee Medical Group
"A KCD Prototype for Imaging in Radiotherapy" (PI): grant to build prototype small field of view KCD
detector as an experimental investigation in alternative imaging technology in radiotherapy | \$ 15,000 | 1996-1997 |
| 7. | National Institute of Health (grant no. CA76061)
"A KCD Based System for Megavoltage Portal Imaging" (PI): grant to build experimental prototype
imaging detector and carry out experimental/ theoretical studies to study feasibility of technology in clinical
setting. This involved mechanical and Monte Carlo studies, imaging parameter measurements and
comparisons with other imaging detectors. | \$500,000 | 1998-2004 |
| 8. | Wellhofer North America
Instrumentation grant for imaging studies | \$ 2,000 | 1999-2001 |

9. St. Jude Children's Research Hospital \$ 60,000 2000
 "Prototype Portal Imaging System Using Novel Collimation/Optical Technology" (PI): grant to explore alternative imaging technologies adaptable to existing medical linacs. This involved an experimental study of optical fiber based and thick scintillator imaging detectors.
10. Siemens (co-PI) \$ 160,000 2000-2002
 "Accelerator Technology for Pediatric Conformal Radiotherapy" (PI Marc Sontag): co-PI's role to develop algorithms/ software for automated verification of multileaf collimation (MLC) (ie radiation aperture) from megavoltage imaging as part of radiotherapy treatment verification.

PATENTS:

1. Samant SS, Laughter J and Jain J, "Multilayered Board Comprising Folded Flexible Circuits and Method of Manufacture" (patent # 6,483,713 B2, United States Patent Office 2002).

TEACHING & MENTORING EXPERIENCE:

- 09/91 Cytotechnology students: Undergraduate course in Introductory Physics at Cancer Treatment and Research Foundation of Nova Scotia
- 1991-1993 Physics graduate students: Graduate course in Radiation Physics in Department of Radiation Oncology at Dalhousie University
- 1996 to 2005 Supervision of 9 Masters and 2 doctoral students at School of Biomedical Engineering at University of Tennessee, Memphis and Computer Science, University of Memphis
- 2003 Graduate reading course in image processing at University of Memphis
- 2004 AAPM Summer Mentorship Award for Undergraduate Student Project
- 2005 to present 3 Graduate courses in Radiation therapy physics. Supervision of 3 PhD students.

PRACTICE (PROFESSIONAL) EXPERIENCE:

- 1988-1989 Foreign Service Officer
 Canadian Foreign Service
 Dept. of External Affairs
 Ottawa, Ontario, Canada
- 05/89-12/89 Postdoctoral Fellow
 Department of Physics
 Carlton University
 Ottawa, Ontario
 Canada K1S 5B6
- 12/89-12/90 Postdoctoral Fellow
 Ottawa Regional Cancer Center, General Division
 501 Smythe Road
 Ottawa, Ontario
 Canada K1H 8L6
- 01/91-05/93 Medical Physicist
 Cancer Treatment & Research Foundation of N.S.
 5820 University Avenue
 Halifax, Nova Scotia
 Canada B3H 1V7
- 05/93-11/97 Medical Physicist (physics head of satellite facility)
 Department of Radiation Oncology
 UT Medical Group, Inc.
 Memphis, Tennessee

11/97-11/98	Medical Physicist (physics head of clinic) Department of Radiation Oncology UT Medical Group, Inc. Memphis, Tennessee
11/98-12/05	Medical Physicist (research/ clinic) Department of Radiological Sciences St. Jude Children's Research Hospital Memphis, Tennessee
1/06-current	Nuclear & Radiological Engineering University of Florida Gainesville, Florida
8/05-current	SHANDS Radiation Oncology University of Florida Gainesville, Florida

REFERENCES:

Available upon request

JOURNAL PUBLICATIONS:

1. Elias V, Mann AM, Chowdhury GM, Samant S, Phillips SB. Preregularization. *Can J Phys* 63:1453, 1985.
2. McKeon G, Phillips SB, Samant SS, Sherry TN, Lee HC, Milgram MS. Calculation of the vacuum polarization in non-covariant gauges incorporating Nielsen-Kallosh ghosts. *Phys Lett* 161B:319, 1985.
3. McKeon DGC, Phillips SB, Samant SS, Sherry TN. Becchi-Rouet-Stora invariance in the 't Hooft-Veltman gauge. *Can J Phys* 63:1343, 1985.
4. McKeon DGC, Phillips SB, Samant SS, Sherry TN. The S-matrix in background field quantization. *Nucl Phys B*267:566, 1986.
5. McKeon DGC, Phillips SB, Samant SS, Sherry TN. Background field quantization in non-covariant gauges: Renormalization and WTST identities. *Nucl Phys B*267:488, 1986.
6. McKeon DGC, Samant SS, Sherry TN. Operator regularization beyond lowest order. *Can J Phys* 66:268, 1988.
7. McKeon DGC, Samant SS, Sherry TN. Operator regularization in the component Wess-Zumino model. *J Mod Phys A*5:1919, 1990.
8. Aldrich JE, Samant SS. A test phantom for HDR daily quality control. *Activity* 6:82, 1992.
9. Aldrich JE, Samant SS. A QA HDR phantom. *Br J Radiol* 66:363-365, 1993.
10. Zhu Y, Stovall J, Butler L, Ji Q, Gaber W, Samant S, Sontag M, Armendi A, Merchant T. Comparisons of Two Immobilization Techniques for Pediatric Brain Tumor Patients Using Portal Film, EPID, and Digitally Constructed Radiographs, *Int J Rad Onc Bio Phys*, 48, 1233-1240, 2000.
11. Sawant A, Zeman H, Samant S, Lovhoiden G, Weinberg B and DiBianca F, Theoretical Analysis and Experimental Evaluation of a CsI(Tl) Based Electronic Portal Imaging System, *Med Phys* 29(6):1042-1053, 2002.
12. Samant SS, Zheng W, Parra NA, Chandler J, Gopal A, Wu J, Jain J, Zhu Y, Sontag M. Automated verification of multileaf collimation (MLC) using a Siemens BEAMVIEW EPID. *Med Phys*. 29(12):2900-2912, 2002. (*Best paper award by Southeast Association of American Physicists in Medicine*)
13. Samant SS, Jain J. Manufacturing of the folded flexible circuit board. *Int. J of Micro & Electronic Packaging*, 25(1):88-99, 2002.
14. Qi G, Goloubev M, FA DiBianca and Samant S. On modeling the kinesatic charge detector for digital radiographic diagnostic and portal imaging. *J. of Medical Engineering and Technology*, 5:193-198, 2002.
15. Jain J, Samant S. Novel multilayering technique using folded flexible circuits. *J. of Electronic Manufacturing*, *IEEE Trans*, 28(3): 259-264, 2005.
16. Wu J, SS Samant. An Automated Registration Quality Evaluator. Submitted to *Med Phys*.
17. Samant SS, Gopal A. Analysis of the Kinestatic Charge Detector as a Megavoltage Electronic Portal Imaging Device (EPID). *Med Phys*. (in press)
18. Samant SS, Gopal A, Sobczak D. A high quantum efficiency prototype video based portal imaging system. *Journal of X-ray Sc. Tech*. (In press)
19. Samant SS, Gopal A, A Prototype High Quantum Efficiency Video Electronic Portal Imaging Device (EPID). *Med Phys*. (In press)
20. Samant SS, Gopal A, Xia J, Jain J, Wu J. A Novel Scanning Multi-Ion Chamber Detector for Megavoltage X-ray Imaging. Submitted to *Nuclear Instruments and Methods in Physics Research*.
21. Gopal A, Samant SS. A Recombination Study of a High Quantum Efficiency Kinestatic Charge Detection (KCD) Ion Chamber Based EPID. Submitted to *Med Phys*
22. Samant SS, Wu J, Xia J. An algorithm for automatic star-shots analysis. Submitted to *Med Phys*.
23. Parra NA, Narasimhan G, Samant SS. A Robust Point Based Registration Algorithm. Submitted to *Physics in Medicine and Biol*.
24. Samant SS, Xia J. Improved Target Localization in Low Field MR Using Local Weighed Mean (LWM) for Spatial Distortion Correction. Submitted to *Physics in Medicine and Biol*.
25. Xia J, Li J, Samant SS. Electronic Portal Imaging Device Based QA: Automatic classification and verification of conformal fields and step-and-shoot IMRT segments. Submitted to *Med Phys*.
26. Gopal A, Samant SS. Use of a Bar Pattern Method for Modular Transfer Function Measurement (MTF) in Megavoltage Imaging. Submitted to *Med Phys*.

MANUSCRIPTS UNDER PREPARATION

1. Samant SS, Li L, Jain J. Automatic Detection of Collimator Angle of Arbitrary Multileaf Collimated (MLC) Fields.
2. Samant SS, Jain J, Parra NA, Wu J, Xia J. Spatial Correction Technique for Video EPID Images Using Local Weighted Mean.
3. Wu J, Samant SS. An automated online registration algorithm for EPID images using iterative subregion matching

4. Samant SS, Xia J, Wu J. Use of Supervised Laplacian-of-Gaussian (SLoG) Edge Detection for Collimation Edge Detection in Portal Imaging.
5. Wu J, Samant SS. A Robust Automated 2D Multi-modality Image Registration Method Using Mutual Information and Variable Step Length Grid Search Algorithm.

PROCEEDINGS PUBLICATIONS:

1. McKeon DGC, Samant SS, Sherry TN. Proceedings of MRST-87, A Das (ed), University of Rochester, 1987.
2. DiBianca FA, Samant SS, Laughter J, Rasmussen J, Rodriguez C. Use of a kinestatic charge detector for megavoltage portal imaging. Proc SPIE 3037:195-201, 1997.
3. Zeman HD, Samant SS, Rasmussen J. 6MVp x-ray imaging with a transparent scintillator x-ray detector. Proc SPIE 3032:388, 1997.
4. Zeman HD, Samant SS, Lovhoiden G, Weinberg B, Sawant A. Portal imaging with a CSI (TI) transparent scintillator x-ray detector. Proc SPIE 3336:175-186, 1998.
5. Gaber MW, Guam HG, DiBianca FA, Samant SS, Zhu Y. Development of Portal CT Reconstruction Using MLS-ART Technique and the Kinestatic Charge Detector Imaging system: Low Energy X-ray. Proc SPIE 3336:716-723, 1998.
6. Samant SS, Zheng W, DiBianca FA, Zeman HD, Laughter JL. A new calibration technique for KCD-based megavoltage imaging. Proc SPIE 3659:779-792, 1999.
7. Sawant A, Zeman H, Muratore D, Samant S, DiBianca F. An adaptive median filter algorithm to remove impulse noise in x-ray and CT images and speckle in ultrasound images. Proc SPIE 3661:1263-1274, 1999.
8. Samant SS, Zeman H, Weinberg BD, Zheng W, Patra P. Spectral response of CSI (TI) transparent scintillation detector for megavoltage imaging. Proc SPIE 3659: 793-805, 1999.
9. Zeman HD, Samant SS, Sawant A. Human subject portal images with a CSI (TI) transparent scintillator. Proc SPIE 3659:682-693, 1999.
10. Xu C, Huang X, Krishnan A, Samant S. "An Automated Image-based Method for Multi-Leaf Collimator Positioning Verification in Intensity Modulated Radiation Therapy," Proc. of International Conference on Diagnostic Imaging and Analysis, 387-392, Shanghai, August 2002.
11. Samant SS, Gopal A and DiBianca FA, Detective quantum efficiency for the kinestatic charge detector as a megavoltage imaging device, SPIE International Symposium: Medical Imaging 2003. San Diego, California, February 15-20 February 2003.
12. Gopal A and SS Samant, The use of the bar-pattern technique for modulation transfer function calculations in portal imaging systems, SPIE International Symposium: Medical Imaging 2003. San Diego, California, February 15-20, 2003.
13. Wu J, Samant SS. Automated registration quality evaluator for patient setup verification in radiotherapy. SPIE International Symposium: Medical Imaging 2003. San Diego, California, February 15-20, SPIE 2004.

INVITED TALKS:

1. Samant SS, DiBianca FA, Laughter JL, Zheng W. KCD based megavoltage portal imaging. Presented at Biomedical Engineering Society 1998 Annual Meeting, Cleveland, Ohio, October 10-13, 1998.
2. Samant SS, DiBianca FA, Zeman HD, Laughter LL, Wu J, Sawant A, Jain J and Gopal A. New Portal Imaging Devices. Presented at the Tennessee 2000 Biomedical Engineering Conference, Knoxville, Tennessee, 30 March-1 April 2000.
3. Samant, S, Portal Imaging for Patient Positioning, IGIMRT by Sea Practicum, July 30-Aug 6, 2005.

ORAL PRESENTATIONS:

1. Samant SS, Frank GW. A chaotic time series analysis of ECG data. Presented at 34th Annual Meeting of American Association of Physicists in Medicine. Calgary, Canada, August 23-27, 1992.
2. Samant SS, DiBianca FA, Laughter JS. A kinestatic charge detector for megavoltage imaging. Presented at 38th Annual Meeting of American Association of Physicists in Medicine (AAPM). Philadelphia, Pennsylvania, July 22-25, 1996.
3. DiBianca FA, Samant SS, Laughter J, Rasmussen J, Rodriguez C. Use of a kinestatic charge detector for megavoltage portal imaging. Presented at SPIE International Symposium: Medical Imaging 1997. Newport Beach, California, February 22-28, 1997.
4. Samant SS, DiBianca FA, Laughter J, Patra P. Imaging parameters of a prototype KCD system. Presented at 39th Annual Meeting of American Association of Physicists in Medicine. Madison, Wisconsin, July 27-31, 1997.

5. Samant SS, DiBianca FA, Laughter JL. Alternative portal imaging technologies: Improving image contrast and resolution. Presented at Southeast Association of American Physicists in Medicine Annual Meeting, Memphis, Tennessee, April 3-4, 1998.
6. Samant SS, DiBianca FA, Laughter JL, Zheng W. A comparison of a novel prototype electronic portal imaging device (EPID) with film and commercial EPIDs. Presented at the 40th Annual Meeting of the American Society for Therapeutic Radiology and Oncology, Phoenix, Arizona, October 25-29, 1998.
7. Samant SS, Wu J, Zheng W, Qing Ji, Burnhan B, Coffey D, Sawant A, Patra P, Zhu Y and Sontag M. Automated Verification of Multileaf Collimation (MLC) using a Siemens EPID. Presented at 42nd Annual Meeting of American Association of Physicists in Medicine, Chicago, Illinois, 23-28 July 2000.
10. Samant SS and Wu J, Clinical Implementation of Automated Image Registration Using Subregion Matching 43rd Annual Meeting of AAPM, Salt Lake City, Utah, 22-26 July 2001.
11. Samant SS, Wu J, Krasin M and Kun LE, Automated Image Registration Using Region Matching for Cranial Radiotherapy, 43rd Annual Meeting of ASTRO, San Francisco, Cal, 4-8 November 2001.
12. Samant SS, Wu J. An automated registration quality evaluator for image registration in portal verification of patient setup. Presented at 44th ASTRO Annual Meeting, New Orleans, LA, 6-10 October, 2002.
13. Samant SS, Gopal A and DiBianca FA, Detective quantum efficiency for the kinesthetic charge detector as a megavoltage imaging device, SPIE International Symposium: Medical Imaging 2003. San Diego, California, February 215-20 February 2003.
14. Gopal A and SS Samant, The use of the bar-pattern technique for modulation transfer function calculations in portal imaging systems, SPIE International Symposium: Medical Imaging 2003. San Diego, California, February 15-20 February 2003.
15. Samant S, Jain J, Sobczak D, Crawford B, Coffey D and Xia J, EPID Based Quality Assurance for Collimation Verification in External Beam Radiotherapy. Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
16. Wu J and Samant S, An Automated Registration Quality Evaluator for Setup Verification in Radiotherapy, Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
17. Wu J and Samant S, Automated registration quality evaluator for patient setup verification in radiotherapy, SPIE International Symposium: Medical Imaging 2004. San Diego, California, February 14-19 Feb 2004.
18. Gopal A and Samant S. Evaluation of clinical portal image quality based on detective quantum efficiency (DQE) measurements using a fast measurement of modulation transfer function (MTF). Presented at 46th Annual Meeting of AAPM, Pittsburgh, PA, July 25-29, 2004.
19. Samant S, and Wu J. Receiver operating characteristic (ROC) based evaluation of registration algorithms. Presented at 46th Annual Meeting of AAPM, Pittsburgh, PA, July 25-29, 2004.
20. Samant S, Registration Strategies in Image Guided Radiotherapy. Presented at 41st Meeting of Particle Therapy Co-Operative Group, Bloomington IN, Oct 10-13, 2004.
21. Samant S, and Gopal A. Development and Analysis of a High Quantum Efficiency Thick Scintillator Based Video EPID for Sub-MU Verification Imaging. Presented at 47th Annual Meeting of AAPM, Seattle, WA, July 25-29, 2005.
22. Samant S, and Xia J. Improved Target Localization in Low Field MR Using Local Weighted Mean(LWM) for Spatial Distortion Correction. Presented at 47th Annual Meeting of AAPM, Seattle, WA, July 25-29, 2005.
23. Wu J, Huang M, Wang Z and Samant S. Evaluation of similarity measures for use in intensity-based registration in radiotherapy. To be presented at 48th Annual Meeting of AAPM, Orlando, FL, July 30- Aug 1 2006.

ORAL POSTER PRESENTATIONS:

1. Samant S, Jain J, Gopal A, Sobczak D, A Prototype High Quantum Efficiency Thick Scintillator Video EPID for Sub-MU Imaging. Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
2. Parra NA, Narasimhan G, and Samant S, An Optimized Point-Based Multimodality Image Registration Algorithm. Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
3. Gopal A and Samant S, A Method for Fast Measurement of MTF for Quality Assurance in Megavoltage Imaging. Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
4. Samant SS, Jain JJ, Sobczak S and Gopal A, A Prototype Sub-MU Portal Imaging System. Presented at 45th ASTRO Annual Meeting, Salt Lake City, Utah, 19-23 Oct 2003.
5. Wu J and S Samant, Registration quality evaluator: application to automated patient setup verification in radiotherapy, SPIE International Symposium: Medical Imaging 2004. San Diego, California, February 14-19 Feb 2004.
6. Wu J, and Samant S. Effect of Flat-fielding on Intensity-based Registrations Using Electronic Portal Imaging Devices (EPIDs) in Radiotherapy. Presented at 46th Annual Meeting of AAPM, Pittsburgh, PA, July 25-29, 2004.

POSTER PRESENTATIONS:

1. Aldrich JE, Samant SS. A test phantom for HDR daily quality control. Presented at 7th Annual International Brachytherapy Working Conference (poster session). Baltimore, Maryland, September 6-8, 1992.
2. Zeman HD, Samant SS, Rasmussen J. 6MVp x-ray imaging with a transparent ceramic x-ray detector. SPIE International Symposium: Medical Imaging 1997. Newport Beach, California, February 22-28, 1997.
3. Zeman HD, Samant SS, Luvhoiden G, Weinberg B, Sawant. A. Portal imaging with a CSI (TI) transparent scintillator x-ray detector. 5th International Workshop on Electronic Portal Imaging, Phoenix, Arizona, October 29-31, 1998.
4. Samant SS, Zheng W, Wu J, Liu C, Coffey D, Sontag. Automated Verification of Multileaf Collimation using an EPID. Presented at 41st Annual Meeting of American Association of Physicists in Medicine. Nashville, Tennessee, July 25-29, 1999.
5. Samant SS, Zheng W. and Liu C. Automated Verification of Multileaf Collimation using Portal Imaging. Presented at BMES-EMBS 1st Joint Conference, Atlanta, Georgia, 13-16 October 1999.
6. Samant SS, Wu J, and Zheng W. Automated Edge Detection: New Methodologies for Portal Imaging. Presented at 42nd Annual Meeting of American Association of Physicists in Medicine, Chicago, Illinois, 23-28 July 2000.
7. Wu J and Samant S, Automated Image Registration Using Subregion Matching and a Pattern Classifier, 43rd Annual Meeting of American Association of Physicists in Medicine, Salt Lake City, Utah, 22-26 July 2001.
8. Samant SS, Parra NA, Davis B, Sontag M, Narasimhan G. A new multi-modality image registration algorithm. Presented at 44th AAPM Annual Meeting, Montreal, Quebec, Canada, 14-18 July, 2002.
9. Samant SS, Wu J, Davis B, Crouch A, Crawford B, Kahler D, Sontag M. Supervised gradient edge detection for Online MLC verification using EPID imaging. Presented at 44th AAPM Annual Meeting, Montreal, Quebec, Canada, 14-18 July, 2002.
10. Jain J and Samant S, Spatial Correction Technique for Video EPID Images Using Local Weighted Mean. Presented at 45th Annual Meeting of AAPM, San Diego Cal, 10-14 Aug 2003.
11. Samant S, Xia J, Patra P, Sobczak D. CT, Laser and Linac Axes Alignment Using an Electronic Portal Imaging Device (EPID). Presented at 46th Annual Meeting of AAPM, Pittsburgh, PA, July 25-29, 2004.
12. Parra NA, Narasimhan G, Samant SS, A Robust Marker Registration Algorithm. Presented at 46th Annual Meeting of AAPM, Seattle, WA, July 25-29, 2005.
13. Xia J and Samant S. A novel non-rigid image registration algorithm for radiation therapy using p-element based biomechanical model (PBM). To be presented at 48th Annual Meeting of AAPM, Orlando, FL, July 30-Aug 1 2006.

Courses Responsible for Teaching(Graduate):

ENU6627 Therapeutic Radiological Physics
ENU6937 Advanced Therapeutic Radiological Physics
ENU6651 Clinical Rotation in Radiation Therapy

Current Graduate Students:

Arun Gopal (PhD)
Junyi Xia (PhD)
Mi Huang (PhD)

Postdocs:

Jian Wu, PhD

Current Research Projects:

1. Image Guided Radiotherapy: megavoltage portal imaging applications in radiotherapy and registration strategies for proton therapy
2. Image Registration for patient positioning (2D/3D and 3D/3D) and treatment planning (4D CT)
3. Image Registration: deformable, similarity measures and optimization algorithms
4. Imaging Theory: measurement and computation of MTF, DQE
5. Detector Development: development of prototype high DQE imaging detectors for medical imaging and industrial/ homeland security
6. Linear Accelerator QA Using Electronic Portal imaging Devices and Digital Image Processing