Curriculum Vitae

Yulei Jiang, Ph.D.

Office Address:
Department of Radiology, MC2026
The University of Chicago
5841 South Maryland Avenue
Chicago, IL 60637
phone: (773) 834-3467
fax: (773) 702-0371
e-mail: y-jiang@uchicago.edu

Education:

B.S.	1986	Physics, Beijing University, Beijing, China
M.S.	1990	Physics, Bowling Green State University, Bowling Green, OH
Ph.D.	1997	Medical Physics, The University of Chicago, Chicago, IL

Professional Experience:

1986-1988	Research Associate in Physics, Beijing University
1990-1997	Graduate Research Assistant in Radiology, The University of Chicago
1997-1999	Instructor of Radiology, The University of Chicago
1999-2006	Assistant Professor of Radiology, The University of Chicago
2001-present	Member, The University of Chicago Cancer Research Center
2003-2006	Assistant Professor, Committee on Medical Physics, The University of Chicago
2006-present	Associate Professor (with tenure) of Radiology, The University of Chicago
2006-present	Associate Professor, Committee on Medical Physics, The University of Chicago

Professional Associations:
American Association of Physicists in Medicine (AAPM)
The Society of Photo-Optical Instrumentation Engineering (SPIE)
Medical Image Perception Society (MIPS)
The Association of University Radiologists (AUR)
The American Urological Association (AUA)

Awards and Honors:

1989	Bowling Green State University Overman Hall Award
1990-1991	University of Chicago Biological Sciences Division Graduate Fellowship

1994 Region 4 finalist, Whitaker Foundation Student Paper Competition, the 16th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Baltimore, MD.
(**Jiang Y**, Nishikawa RM, Wolverton DE, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Mammographic feature analysis of clustered microcalcifications for classification of breast cancer and benign breast diseases.)

1997 Certificate of Merit Award, Scientific Exhibit, the 83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(Schmidt RA, Nishikawa RM, **Jiang Y**, Metz CE, Wolverton DE, Doi K. Can computers help radiologists decide who needs a breast biopsy?)

1998 Cum Laude Award, Scientific Exhibit, the 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(**Jiang Y**, Nishikawa RM, Giger ML, Huo Z, Schmidt RA, Wolverton DE, et al. Computer-aided diagnosis (CAD) of breast lesions: An interactive demonstration.)

1999 Herbert M. Stauffer Award for Outstanding Paper in *Academic Radiology* 1999, the Best Basic Science Paper
(**Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Improving breast cancer diagnosis with computer-aided diagnosis. *Academic Radiology* 6:22-33, 1999.)

2000 Cum Laude Award, Scientific Exhibit, the 86th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(Nishikawa RM, Giger ML, **Jiang Y**, Huo Z, Vyborny CJ, Jokich PM, et al. Implementation of computer-aided diagnosis (CAD) into the clinical mammography work flow.)

2001 Kurt Rossmann Award for Teaching Excellence, Graduate Program in Medical Physics, The University of Chicago.

2001 Certificate of Merit Award, Scientific Exhibit, the 87th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(Giger ML, Nishikawa RM, Huo Z, **Jiang Y**, Horsch KJ, Hendrick RE, et al. Multi-modality workstation for computer-aided diagnosis (CAD) in breast imaging.)

2002 Excellence in Design Award, Educational Exhibit, the 88th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(**Jiang Y**, Nishikawa RM, Giger ML, Papaioannou J, Lan L, Vyborny CJ, et al. On-line demonstration of computer-aided diagnosis (CAD) of malignant and benign breast lesions.)

2004 Certificate of Merit Award, InfoRad Exhibit, the 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL.
(Giger ML, Nishikawa RM, **Jiang Y**, Newstead GM, Schmidt RA, Metz CE, et al. Integration of multi-modality breast CAD into the clinical workflow.)

Research Grants:

Past:

1. NIH/NCI. **Jiang Y** PI, 30% effort. *LP-and ANN-based classifiers for breast cancer diagnosis*; subcontract to Technology/Engineering Management, Inc. 7/1/98-6/30/99. Total subcontract costs: $19,799.

2. Cancer Research Foundation of America. **Jiang Y** PI, 15% effort. *A computer technique for improving the early detection of breast cancer.* 1/15/99-1/12/02. Total direct costs: $32,000.

3. Illinois Department of Public Health. **Jiang Y** PI, 10% effort. *Development of a new computer technique for classification of breast lesions.* 7/1/99-6/30/02. Total direct costs: $187,300.

4. American Cancer Society Institutional Award. **Jiang Y** PI, 0% effort. *Assessing prostate cancer progression with artificial neural network-based predictive models.* 12/1/01-11/30/02. Total direct costs: $20,000.

5. US Army DAMD17-00-1-0197. **Jiang Y** PI, 50% effort. *Computer-aided diagnosis of digital mammograms.* 6/1/00-5/30/04. Total costs: $235,938.

6. NIH 1R21 CA93989. **Jiang Y** PI, 9% effort. *Estimating neural network precision for cancer diagnosis.* 12/1/01-11/30/03. Total costs: $367,993.

7. NIH 1R21 CA97308. **Jiang Y** PI, 6% effort. *Neural network prediction of prostate cancer progression.* 7/1/02-6/30/04. Total costs: $292,295.

Current:

1. NIH 1R01 CA092361. **Jiang Y** PI, 10% effort. *Computer-aided diagnosis of breast lesions in mammograms.* 4/1/02-3/31/07. Total costs: $1,521,385.

2. NIH 1R21 EB006466. **Jiang Y** PI, 33% effort. *Computer-aided Analysis of Histopathology Images of Prostate Cancer.* 6/15/07-5/31/09. Total costs: $433,928.

Pending:

1. NIH 1P01 CA129290. Nishikawa RM PI. *Translating computer-aided diagnosis (CADx) from the lab to the clinic.* 7/1/07-6/30/12. Total costs: $10,916,339. Project 2, **Jiang Y** PI, Abe H co-PI, 35% effort. *Computer-aided diagnosis (CADx) of breast calcifications.* Total direct costs: $1,080,488.

2. NIH 2R01 CA092361. **Jiang Y** PI, 25% effort. *Computer-aided diagnosis of breast lesions in mammograms.* 7/1/07-6/30/12. Total costs: $1,893,070.

National and International Professional Activities:

Membership on National Advisory Boards:

2003-2005	Susan G. Komen Breast Cancer Foundation Research Grants Study Section Leader and Programmatic Review Panel
2004-2005	Susan G. Komen Breast Cancer Foundation Research Program Task Force
2004-present	American College of Radiology Imaging Network (ACRIN) National Lung Screening Trial (NLST) Computer-Aided Diagnosis (CAD) Committee
2004-present	US Food and Drug Administration (FDA) Center for Devices and Radiological Health (CDRH) Radiological Devices Panel

Grant Reviewer:

1999-present	Susan G. Komen Breast Cancer Foundation
2001-2002	National Institutes of Health (NIH) special study section
2002-present	US Army Medical Research and Materiel Command Breast Cancer Research Program
2003	Canadian Breast Cancer Foundation, Alberta/NWT Chapter
2004	National Cancer Institute (NCI) Program Project (P01) Study Section
2005	Nanotechnology Institute (Ben Franklin Technology Partners of Southeastern Pennsylvania)
2007	NIH BMIT study section *ad hoc* reviewer

Leadership Role in Scientific Conferences:

2001	Program Committee, Medical Image Perception Conference IX (MIPS)
2001	Workshop Chair, Medical Image Perception Conference IX (MIPS) Workshop on Computer-Aided Diagnosis
2001-2004	Program Committee, SPIE International Symposium on Medical Imaging Image Perception, Observer Performance, and Technology Assessment Conference
2004-2007	Co-Chair, SPIE International Symposium on Medical Imaging Image Perception, Observer Performance, and Technology Assessment Conference

Scientific Conference Session Chair/Moderator:

American Association of Physicists in Medicine (AAPM)

Engineering in Medicine and Biology (EMBS)

International Congress and Exhibition of Computer Assisted Radiology and Surgery (CARS)

Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA)

SPIE International Symposium on Medical Imaging Image Perception, Observer Performance, and Technology Assessment Conference

Scientific Conference Abstract Reviewer:

American Association of Physicists in Medicine (AAPM)

Engineering in Medicine and Biology (EMBS)

International Joint Conference on Neural Networks (IJCNN)

SPIE International Symposium on Medical Imaging Image Perception, Observer Performance, and Technology Assessment Conference

Manuscript Reviewer:

Academic Radiology
BMC (BioMed Central) Medical Imaging
British Journal of Cancer
Clinical Breast Cancer
IEEE Transactions on Biomedical Engineering
IEEE Transactions on Information Technology in BioMedicine
IEEE Transactions on Medical Imaging
IEEE Transactions on Nuclear Science
International Journal of Pattern Recognition and Artificial Intelligence
Journal of Applied Clinical Medical Physics
Journal of Digital Imaging
Journal of Electronic Imaging
Medical & Biological Engineering & Computing
Medical Decision Making
Medical Image Analysis
Medical Physics (Guest Associate Editor)
Physics in Medicine & Biology
Radiology

Other International Activities:

2005-present	Faculty member, Faculty of 1000 Medicine, Methods for Diagnostic and Therapeutic Studies Section

Teaching Activities:

1988-1990	Teaching Assistant Undergraduate physics laboratories Bowling Green State University
1992, 1993	Teaching Assistant Two Medical Physics graduate courses The University of Chicago
1997-present	Course director Practicum in Medical Imaging I (Medical Physics 34200) The University of Chicago

1998	Lecturer Physics of Mammography (Radiology 39100) The University of Chicago
1998-present	Member, Curriculum Committee Committee on Medical Physics The University of Chicago
2006-present	Member, Library Committee Committee on Medical Physics The University of Chicago
2005-present	Member, Library Committee Department of Radiology The University of Chicago

Students/Trainees Supervised:

2000	Irfan Moinuddin Medical student (The University of Illinois at Chicago) Summer research on computer-aided diagnosis of breast lesions
2001-2003	Xiao Han College student (The University of Chicago) Research on prostate cancer
2001-2003	Sophie Paquerault, Ph.D. Research Associate Research on using BI-RADS for computer-aided diagnosis of breast lesions Currently FDA scientist
2002	Vicky Chen Medical student (The University of Chicago) Summer research on computer-aided diagnosis of benign breast lesions Currently radiology resident, the University of Chicago
2002-2003	Irene Hong College student (The University of Chicago) Research on mammogram database collection for computer-aided diagnosis
2002	Paul Hong College student (Northwestern University) Summer research on mammograms database for computer-aided diagnosis
2002	Fengmei Liu, MS, Computer scientist Support for research on artificial neural networks Currently computer scientist, Department of Medicine, University of Chicago
2002-present	Richard Zur Graduate research assistant (Medical Physics) Dissertation research on classifier design for computer-aided diagnosis (Primary advisor)
2002-present	Yahui Peng Graduate research assistant (Medical Physics) Dissertation research on prostate cancer (Primary advisor)

2002-present	Bei Liu, Ph.D. Research Associate Research on theoretical modeling of methods for computer-aided diagnosis
2003	Rich Rana Medical student (The University of Chicago) Summer research on computer-aided diagnosis of digital mammograms
2003	Nicole R. Lunning College student (The University of Chicago) Summer research on digital mammograms
2003-present	Emma Littleton Junior Research Technician Support for research on computer-aided diagnosis
2004	Khadijeh Kadivar Medical student (The University of Chicago) Summer research on computer-aided diagnosis of digital mammograms of benign breast lesions
2004	Meena Anand College student (Princeton University) Summer research on computer-aided diagnosis of digital mammograms of benign breast lesions
2004	Philip Smithback College student (The University of Chicago) Summer research on observer inattention in a detection task
2005	Daniel Gingold College student (The University of Chicago) Summer research on digital mammography database
2005	Brian Klein College student (The University of Chicago) Summer research on observer inattention in a detection task
2006	Kevin Miklasz College graduate (The University of Chicago) Summer research on digital mammography computer-aided diagnosis

Original Peer-Reviewed Articles:

1. Ema T, Doi K, Nishikawa RM, **Jiang Y**, Papaioannou J. Image feature analysis and computer-aided diagnosis in mammography: reduction of false-positive clustered microcalcifications using local edge-gradient analysis. *Medical Physics* 22:161-169, 1995.

2. **Jiang Y**, Nishikawa RM, Wolverton DE, Metz CE, Giger ML, Schmidt RA, Vyborny CJ, Doi K. Malignant and benign clustered microcalcifications: Automated feature analysis and classification. *Radiology* 198:671-678, 1996.

3. **Jiang Y**, Metz CE, Nishikawa RM. A receiver operating characteristic partial area index for highly sensitive diagnostic tests. *Radiology* 201:745-750, 1996.

4. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Improving breast cancer diagnosis with computer-aided diagnosis. *Academic Radiology* 6:22-33, 1999.

5. Doi K, MacMahon H, Katsuragawa S, Nishikawa RM, **Jiang Y**. Computer-aided diagnosis in radiology: potential and pitfalls. *European Journal of Radiology* 31:97-109, 1999.

6. Beiden SV, Wagner RF, Campbell G, Metz CE, **Jiang Y**. Components-of-variance models for random-effects ROC analysis: The case of unequal variance structures across modalities. *Academic Radiology* 8:605-615, 2001.

7. **Jiang Y**, Nishikawa RM, Schmidt RA, Toledano AY, Doi K. The potential of computer-aided diagnosis (CAD) to reduce variability in radiologists' interpretation of mammograms. *Radiology* 220:787-794, 2001.

8. **Jiang Y**, Nishikawa RM, Papaioannou J. Dependence of computer classification of clustered microcalcifications as malignant or benign on the correct detection of microcalcifications. *Medical Physics* 28:1949-1957, 2001.

9. **Jiang Y**. Computer-aided diagnosis of breast cancer in mammography: evidence and potential. *Technology in Cancer Research and Treatment* 1:211-216, 2002.

10. Kong J, Li XJ, Gavin D, **Jiang Y**, Li YC. Targeted expression of human vitamin D receptor in the skin promotes the initiation of the postnatal hair follicle cycle and rescues the alopecia in vitamin D receptor null mice. *Journal of Investigative Dermatology* 118:631-638, 2002.

11. Salfity MF, Nishikawa RM, **Jiang Y**, Papaioannou J. The use of *a priori* information to improve the detection of microcalcifications on mammograms. *Medical Physics* 30:823-831, 2003.

12. **Jiang Y**. Uncertainty in the output of artificial neural networks. *IEEE Transactions on Medical Imaging* 22:913-921, 2003.

13. Liu B, Metz CE, **Jiang Y**. An ROC comparison of four methods of combining information from multiple images of the same patient. *Medical Physics* 31:2552-2563, 2004.

14. Paquerault S, Yarusso LM, Papaioannou J, **Jiang Y**, Nishikawa RM. Radial gradient-based segmentation of mammographic microcalcifications: observer evaluation and effect on CAD performance. *Medical Physics* 31:2648-2657, 2004.

15. Wei L, Yang Y, Nishikawa RM, **Jiang Y**. A study on several machine-learning methods for classification of malignant and benign clustered microcalcifications. *IEEE Transactions on Medical Imaging* 24:371-380, 2005.

16. Liu B, Metz CE, **Jiang Y**. Effect of correlation on combining diagnostic information from two images of the same patient. *Medical Physics* 32:3329-3338, 2005.

17. **Jiang Y,** Metz CE, Nishikawa RM, Schmidt RA. Comparison of independent double readings and computer-aided diagnosis (CAD) for the diagnosis of breast calcifications. *Academic Radiology* 13:84-94, 2006. Erratum in *Academic Radiology* 13:534-535, 2006.

18. **Jiang Y**, Metz CE. A quadratic model for combining quantitative diagnostic assessments from radiologist and computer in computer-aided diagnosis (CAD). *Academic Radiology* 13:140-151, 2006. Erratum in *Academic Radiology* 13:534, 2006.

19. Rana RS, **Jiang Y**, Schmidt RA, Nishikawa RM, Liu B. Independent evaluation of computer classification of malignant and benign calcifications in full-field digital mammograms. *Academic Radiology* 14:363-370, 2007.

20. **Jiang Y**, Miglioretti DL, Metz CE, Schmidt RA. Breast cancer detection rate: designing imaging trials to demonstrate improvements. *Radiology* 243:360-367, 2007.

Manuscripts Accepted or In Press:

Manuscripts Submitted or Under Review:

1. Krupinski EA, **Jiang Y**. Evaluation of medical imaging systems. *Medical Physics* (Conditionally accepted October, 2007).

Letters to the Editor:

2. **Jiang Y**, Nishikawa RM, Wolverton DE, Schmidt RA, Vyborny CJ. Letter to the editor, Re: *Radiology* 198:671-678, 1996. *Radiology* 201:581-582, 1996.

3. **Jiang Y**, Miglioretti DL, Metz CE, Schmidt RA. Letter to the editor: Author Response to Dr. Ciatto, Re: *Radiology* 243:360-367, 2007. *Radiology* published online http://radiology.rsnajnls.org/cgi/eletters/243/2/360 June 2007.

4. **Jiang Y**, Miglioretti DL, Metz CE, Schmidt RA. Letter to the editor: Author Response to Dr. Kopans, Re: *Radiology* 243:360-367, 2007. *Radiology* (in press)

Non-Peer Reviewed Original Articles:

1. **Jiang Y**, Nishikawa RM, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Method of extracting signal area and signal thickness of microcalcifications from digital mammograms. *Proc. SPIE* 1778:28-36, 1992.

2. Nishikawa RM, **Jiang Y**, Giger ML, Doi K, Vyborny CJ, Schmidt RA. Computer-aided detection of clustered microcalcifications. *Proc. IEEE International Conference on Systems, Man, and Cybernetics* 2:1375-1378, 1992.

3. Giger ML, Nishikawa RM, Schmidt RA, Vyborny CJ, Lu P, **Jiang Y**, Huo Z, Papaioannou J, Wu Y, Cox S, Kunst R, Bick U, Rosculet K. Preliminary evaluation of an "intelligent" mammography workstation. *Proc. SPIE* 1898:764-766, 1993.

4. Nishikawa RM, Giger ML, Doi K, Vyborny CJ, Schmidt RA, Metz CE, Wu Y, Yin F-F, **Jiang Y**, Huo Z, Lu P, Zhang W, Ema T, Bick U, Papaioannou J, Nagel RH. Computer-aided detection and diagnosis of masses and clustered microcalcifications from digital mammograms. *Proc. SPIE* 1905:422-432, 1993.

5. Nishikawa RM, **Jiang Y**, Giger ML, Vyborny CJ, Schmidt RA, Bick U. Characterization of the mammographic appearance of microcalcifications: Applications in computer-aided diagnosis. *Proc. SPIE* 1898:422-429, 1993.

6. **Jiang Y**, Nishikawa RM, Wolverton DE, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Mammographic feature analysis of clustered microcalcifications for classification of breast cancer and benign breast diseases. *Proc. IEEE Engineering in Medicine and Biology Society* 16:594-595, 1994.

7. Nishikawa RM, **Jiang Y**, Giger ML, Schmidt RA, Vyborny CJ, Zhang W, Papaioannou J, Bick U, Nagel R, Doi K. Performance of automated CAD schemes for the detection and classification of clustered microcalcifications. In Gale AG, Astley SM, Dance DR, Cairns AY, Eds., *Digital Mammography* 13-20, Amsterdam: Elsevier, 1994.

8. **Jiang Y**, Nishikawa RM, Metz CE, Wolverton DE, Schmidt RA, Papaioannou J, Doi K. A computer-aided diagnostic scheme for classification of malignant and benign clustered microcalcifications in mammograms. In Doi K, Giger ML, Nishikawa RM, Schmidt RA, Eds., *Digital Mammography '96* 219-224, Amsterdam: Elsevier, 1996.

9. Nishikawa RM, Giger ML, **Jiang Y**, Huo Z, Doi K, Schmidt RA, Wolverton DE, Vyborny CJ. Automated classification of breast lesions on digital mammograms. In Lemke HU, Vannier MW, Inamura K, Eds., *CAR'97 Computer Assisted Radiology and Surgery* 347-351, Amsterdam: Elsevier, 1997.

10. **Jiang Y**, Nishikawa RM, Wolverton DE, Metz CE, Schmidt RA, Doi K. Computerized classification of malignant and benign clustered microcalcifications in mammograms. *Proc. IEEE Engineering in Medicine and Biology Society* 19:521-523, 1997.

11. **Jiang Y**, Nishikawa RM, Papaioannou J. Requirement of microcalcification detection for computerized classification of malignant and benign clustered microcalcifications. *Proc. SPIE* 3338:313-317, 1998.

12. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Benefits of computer-aided diagnosis in mammographic diagnosis of malignant and benign clustered microcalcifications. In Karssemeijer N, Thijssen M, Hendriks J, van Erning L, Eds., *Digital Mammography* 215-220, Dordrecht: Kluwer Academic Publishers, 1998.

13. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Improvement in radiologists' diagnosis of malignant and benign clustered microcalcifications by the use of computer-aided diagnosis (CAD). In Doi K, MacMahon H, Giger ML, Hoffmann KR, Eds., *Computer-Aided Diagnosis in Medical Imaging* 233-236, Amsterdam: Elsevier, 1998.

14. **Jiang Y**, Nishikawa RM. Radiologists' ability of using computer-aided diagnosis (CAD) to improve breast biopsy recommendations. *Proc. SPIE* 3663:56-60, 1999.

15. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Relative gains in diagnostic accuracy between computer-aided diagnosis and independent double reading. *Proc. SPIE* 3981:10-15, 2000.

16. **Jiang Y**, Nishikawa RM, Venta LL, Maloney MM, Giger ML. Computer classification of malignant and benign microcalcifications in small-field digital mammograms. In Yaffy M, Ed., *Digital Mammography* 215-220, Madison, WI: Medical Physics Publishing, 2000.

17. **Jiang Y**, Metz CE. An optimal method for combining two correlated diagnostic assessments with application to computer-aided diagnosis. *Proc. SPIE* 4324:177-183, 2001.

18. Beiden SV, Wagner RF, Campbell G, Metz CE, **Jiang Y**, Chan HP. Multiple-reader studies, digital mammography, computer-aided diagnosis and the Holy Grail of imaging physics (II). *Proc. SPIE* 4320:619-626, 2001.

19. Beiden SV, Wagner RF, Campbell G, Metz CE, Chan HP, Nishikawa RM, Schnall MD, **Jiang Y**. Analysis of components of variance in multiple-reader studies of computer-aided diagnosis with different tasks. *Proc. SPIE* 4324:167-176, 2001.

20. Edwards DE, Papaioannou J, **Jiang Y**, Kupinski MA, Nishikawa RM. Eliminating false-positive microcalcification clusters in a mammography CAD scheme using a Bayesian neural network. *Proc. SPIE* 4322:1954-1960, 2001.

21. **Jiang Y**. Comparison of student's t-test and the Dorfman-Berbaum-Metz (DBM) method for the statistical comparison of competing diagnostic modalities. *Proc. SPIE* 4686:205-209, 2002.

22. Nishikawa RM, Salfity MF, **Jiang Y**, Papaioannou J. Improving the automated classification of clustered calcifications on mammograms through the improved detection of individual calcifications. *Proc. SPIE* 4684:1339-1345, 2002.

23. **Jiang Y**, Nishikawa RM, Schmidt RA, D'Orsi CJ, Vyborny CJ, Giger ML, Lan L, Huo Z, Edwards AV. Comparison of BI-RADS lesion descriptors and computer-extracted image features for computer classification of malignant and benign breast lesions. In Peitgen HO, Ed., *Digital Mammography 2002* 317-321, Heidelberg: Springer Verlag Publishers, 2002.

24. Vyborny CJ, Kukec C, **Jiang Y**, Doi K. Experience with computer-aided detection in a low-volume mammography clinic. In Peitgen HO, Ed., *Digital Mammography 2002* 387-390, Heidelberg: Springer Verlag Publishers, 2002.

25. Salfity MF, Nishikawa RM, **Jiang Y**, Papaioannou J. Improvement in the automatic detection of individual microcalcifications to integrate a cluster-detection and a cluster-classification schemes. In Peitgen HO, Ed., *Digital Mammography 2002* 411-413, Heidelberg: Springer Verlag Publishers, 2002.

26. Freedman M, Lo S-CB, Osicka T, Zhao H, Lure F, Xu X, Lin J, Zhang R, **Jiang Y**. Enhanced computer aided detection of lung cancer on chest radiographs with the Deus Technologies RS-2000. In Lemke HU, Vannier MW, Inamura K, Eds., *CAR'02 Computer Assisted Radiology and Surgery*, Amsterdam: Elsevier, 2002.

27. **Jiang Y**, Salfity MF, Chen V, Nishikawa RM, Papaioannou J, Edwards AV, Paquerault S. Effect of radiologists' variability on the performance of computer classification of malignant and benign calcifications in mammograms. *Proc SPIE* 5034:42-47, 2003.

28. Paquerault S, **Jiang Y**, Nishikawa RM, Schmidt RA, D'Orsi CJ, Vyborny CJ. Automated selection of BI-RADS lesion descriptors for reporting calcifications in mammograms. *Proc SPIE* 5032:802-809, 2003.

29. Liu B, **Jiang Y**. Training artificial neural networks (ANNs) with multiple target values to reduce output uncertainty. *Proc SPIE* 5034:433-438, 2003.

30. **Jiang Y**, Nishikawa RM, Schmidt RA, D'Orsi CJ, Vyborny CJ, Newstead GM. Use of BI-RADS lesion descriptors in computer-aided diagnosis of malignant and benign breast lesions. *Proc SPIE* 5372 199-202, 2004.

31. **Jiang Y**, Rana RS, Schmidt RA, Nishikawa RM, Liu B, Sennett CA, Chambliss JJ, Abe H. Computer classification of malignant and benign calcifications in full-field digital mammograms. In Pisano E, Ed., *Digital Mammography 2004*, (in press).

32. Nishikawa RM, **Jiang Y**, Reiser I. What is the required pixel size for digital mammography? In Pisano E, Ed., *Digital Mammography 2004*, (in press).

33. Zur RM, **Jiang Y**, Metz CE. Comparison of two methods of adding jitter to artificial neural network training. In Lemke HU, Vannier MW, Inamura K, Farman AG, Doi K, Reiber JHC Eds., *CARS 2004 Computer Assisted Radiology and Surgery*, Amsterdam: Elsevier, 886-889, 2004.

34. **Jiang Y**, Sacks W, Metz CE. Effect of observer inattention in a detection task on ROC analysis. *Proc SPIE* 5749:114-117, 2005.

35. Liu B, Metz CE, **Jiang Y**. A theoretical investigation of several methods for combining multiple diagnostic assessments. *Proc SPIE* 5749:43-48, 2005.

36. Wei L, Yang Y, Nishikawa RM, **Jiang Y**. A study on several machine-learning methods for classification of malignant and benign clustered microcalcifications. *Proc SPIE* 5747:1-8, 2005.

37. **Jiang Y**. A method for assessing the uncertainty in feature selection tasks. *Proc SPIE* 6146:614604, 2006.

38. Zur RM, Pesce LL, **Jiang Y**, Metz CE. A Bayesian interpretation of the "proper" binormal ROC model using a uniform prior distribution for the area under the curve. *Proc SPIE* 6515:651524, 2007.

39. **Jiang Y**. Uncertainty in the Output of Artificial Neural Networks. *IEEE Proceedings of the International Joint Conference on Neural Networks*, 1663, 2007.

Book Chapters:

1. **Jiang Y**. Classification of breast lesions in mammograms. In Bankman I, Ed., *Handbook of Medical Imaging Processing and Analysis* 341-357, New York: Academic Press, 2000.

Invited Presentations:

1. **Jiang Y**. Computer-aided diagnosis of breast lesions. Presented at the *Illinois Institute of Technology Electrical and Computer Engineering Department Seminar*, Chicago, IL, 1999.

2. **Jiang Y**. Computer-aided diagnosis versus independent double reading, which is more effective? Presented at the *14th International Congress and Exhibition of Computer Assisted Radiology and Surgery (CARS)*, San Francisco, CA, 2000.

3. **Jiang Y**. Computer-aided diagnosis of breast cancer: Evidence and potentials. Presented at the *International Conference on Technology in Cancer Research and Treatment in the New Millennium*, Albany, NY, 2001.

4. **Jiang Y**. An overview of computer-aided diagnosis of clustered microcalcifications in mammograms. Presented at the *University of Chicago Department of Medicine Section of Hematology/Oncology Research Conference*, Chicago, IL, 2001.

5. **Jiang Y**. Computer-aided diagnosis of malignant and benign breast lesions. Presented at *Medical Image Perception Conference IX*, Airlie Conference Center, Warrenton, VA, 2001.

6. **Jiang Y**, Paquerault S, Nishikawa RM, Giger ML, Schmidt RA, D'Orsi CJ, Vyborny CJ, Metz CE. Computer-aided diagnosis of malignant and benign breast lesions in mammograms. Invited symposium platform presentation at the *Era of Hope 2002 Department of Defense Breast Cancer Research Program Meeting*, Orlando, FL, 2002.

7. **Jiang Y**. Computer-aided diagnosis of malignant and benign breast lesions in mammograms. Presented at the *American Association of Medical Physicists (AAPM) Midwest Chapter Meeting*, Chicago, IL, 2002.

8. **Jiang Y**. Digital mammography and computer-aided diagnosis. Presented at the *Second Seoul International Symposium for Computer Aided Diagnosis*, Seoul, Korea, 2004.

9. **Jiang Y**. Computer-aided diagnosis of breast calcifications. Presented at the *Second Seoul International Symposium for Computer Aided Diagnosis*, Seoul, Korea, 2004.

10. **Jiang Y**. Miglioretti DL, Metz CE, Schmidt RA. On the difficulty of designing imaging trials to demonstrate improvements in the breast cancer detection rate. Presented at the *Breast Cancer Surveillance Consortium Meeting,* Vancouver, British Columbia, Canada, 2005.

11. **Jiang Y**. Miglioretti DL, Metz CE, Schmidt RA. Effect of reader variability on improvements in breast cancer detection rates. Presented at the *47th Annual Meeting of American Association of Physicists in Medicine*, Seattle, WA, 2005.

12. **Jiang Y**. Combining quantitative diagnostic assessments from radiologist and computer in computer-aided diagnosis. Presented at the *International Chinese Statistical Association 2006 Applied Statistics Symposium*, Storrs, CT, 2006.

13. **Jiang Y**. Uncertainty in the Output of Artificial Neural Networks. Presented at the 2007 *International Joint Conference on Neural Networks*, Orlando, FL, 2007.

Published Abstracts (Including Proffered Presentations, Posters, and Scientific Exhibits):

1. Doi K, Giger ML, MacMahon H, Nishikawa RM, Hoffmann KR, **Jiang Y**, et al. An "intelligent" workstation for computer-aided diagnosis. *Radiology* 181(P):359, 1991. Scientific exhibit presented at the *77th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1991.

2. Nishikawa RM, **Jiang Y**, Giger ML, Doi K, Vyborny CJ, Schmidt RA. Preliminary clinical evaluation of a computer-aided detection scheme for analysis of mammograms. *Radiology* 181(P):188, 1991.

3. Doi K, Giger ML, MacMahon H, Nishikawa RM, Schmidt RA, **Jiang Y**, et al. Computer-aided diagnosis: Potential usefulness of real-time computer output to interpretations of radiologists. *Radiology* 185(P):391, 1992. Scientific exhibit presented at the *78th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1992.

4. **Jiang Y**, Nishikawa RM, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Application of area-thickness feature analysis in computer-aided diagnosis of mammographic microcalcifications. *Radiology* 185(P):254, 1992. Presented at the *78th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1992.

5. **Jiang Y**, Nishikawa RM, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Application of area-thickness feature analysis in computer-aided detection of mammographic microcalcifications. *Medical Physics* 19:1139, 1992. Presented at the *34th Annual Meeting of American Association of Physicists in Medicine*, Calgary, Alberta, Canada, 1992.

6. Nishikawa RM, **Jiang Y**, Giger ML, Doi K, Vyborny CJ, Schmidt RA. Improved method for automated detection of clustered microcalcifications from digital mammograms. *Investigative Radiology* 27:1120, 1992.

7. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, MacMahon H, **Jiang Y**, et al. Computer-aided diagnosis in mammography, chest radiography, angiography, and bone radiography. *Radiology* 189(P):415, 1993. Scientific exhibit presented at the *79th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1993.

8. Ema T, Doi K, Nishikawa RM, Zhang W, **Jiang Y**, Papaioannou J. Computer-aided diagnosis of clustered microcalcifications in digital mammograms: reduction of false positives with use of an edge gradient analysis. *Radiology* 189(P):186, 1993.

9. **Jiang Y**, Nishikawa RM, Giger ML, Doi K, Schmidt RA, Bick U, Wolverton DE, Vyborny CJ. Analysis of image features for automated classification of malignant and benign clustered microcalcifications. *Radiology* 189(P):317, 1993. Presented at the *79th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1993.

10. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, MacMahon H, **Jiang Y**, et al. Radiology workstation with advanced techniques for computer-aided diagnosis. *Radiology* 193(P):431, 1994. Scientific exhibit presented at the *80th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1994.

11. Giger ML, Nishikawa RM, Schmidt RA, Vyborny CJ, Bick U, **Jiang Y**, et al. Computer-aided diagnosis in digital mammography. *Radiology* 193(P):475, 1994. Scientific exhibit presented at the *80th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1994.

12. **Jiang Y**, Nishikawa RM, Wolverton DE, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Computerized feature analysis for classification of malignant and benign clustered microcalcifications at mammography. *Radiology* 193(P):307, 1994. Presented at the *80th Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1994.

13. **Jiang Y**, Nishikawa RM, Wolverton DE, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Automated feature analysis and classification of mammographic microcalcifications. *Medical Physics* 21:876, 1994. Presented at the *36th Annual Meeting of American Association of Physicists in Medicine*, Anaheim, CA, 1994.

14. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, Schmidt RA, MacMahon H, **Jiang Y**, et al. Prototype clinical "intelligent" workstation for computer-aided diagnosis. *Radiology* 197(P):452, 1995. Scientific exhibit presented at the *81st Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1995.

15. **Jiang Y**, Metz CE, Nishikawa RM, Doi K. Diagnostic performance index of a partial area to summarize an ROC curve in high-sensitivity regions. *Radiology* 197(P):357, 1995. Presented at the *81st Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1995.

16. **Jiang Y**, Metz CE, Nishikawa RM, Doi K. Partial area under an ROC curve as an index of diagnostic performance. *Medical Physics* 22:937, 1995. Presented at the *37th Annual Meeting of American Association of Physicists in Medicine*, Boston, MA, 1995.

17. **Jiang Y**, Nishikawa RM, Papaioannou J. Accuracy of classifying malignant and benign clustered microcalcifications with incomplete and contaminated data. *Radiology* 197(P):426, 1995. Presented at the *81st Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1995.

18. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, Schmidt RA, **Jiang Y**, et al. Computer-aided radiographic interpretation on intelligent workstations. *Radiology* 201(P):530, 1996. Scientific exhibit presented at the *82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1996.

19. Giger ML, Nishikawa RM, Schmidt RA, Wolverton DE, Doi K, **Jiang Y**, et al. Computer-aided diagnosis in digital mammography. *Radiology* 201(P):556, 1996. Scientific exhibit presented at the *82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1996.

20. **Jiang Y**, Nishikawa RM, Schmidt RA, Wolverton DE, Comstock CE. Evaluation of a computerized classification scheme for clustered microcalcifications for computer-aided diagnosis (CAD). *Radiology* 201(P):370, 1996. Presented at the *82nd Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1996.

21. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, Schmidt RA, MacMahon H, **Jiang Y**, et al. Computer-aided diagnostic schemes in mammography, chest radiography, angiography, and computed tomography. *Radiology* 205(P):624, 1997. Scientific exhibit presented at the *83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1997.

22. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Improving breast cancer diagnosis with computer-aided diagnosis (CAD). *Radiology* 205(P):274, 1997. Presented at the *83rd Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1997.

23. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Application of computer-aided diagnosis to the diagnosis of breast cancer. *Medical Physics* 24:1039, 1997. Presented at the *39th Annual Meeting of the American Association of Physicists in Medicine*, Milwaukee, WI, 1997.

24. Nishikawa RM, Giger ML, **Jiang Y**, Yoshida H, Schmidt RA, Doi K. Computer-aided diagnosis for the detection and classification of breast lesions. *Radiology* 205(P):740, 1997. Scientific exhibit presented at the *83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1997.

25. Schmidt RA, Nishikawa RM, **Jiang Y**, Metz CE, Wolverton DE, Doi K. Can computers help radiologists decide who needs a breast biopsy? *Radiology* 205(P):658, 1997. Scientific exhibit presented at the *83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1997. (Certificate of Merit Citation Award)

26. **Jiang Y**, Nishikawa RM, Papaioannou J. Effect of computerized detection of microcalcifications on the performance of computerized classification of malignant and benign microcalcifications. *Medical Physics* 25:A214, 1998. Poster presented at the *40th Annual Meeting of American Association of Physicists in Medicine*, San Antonio, TX, 1998.

27. **Jiang Y**, Nishikawa RM, Giger ML, Huo Z, Schmidt RA, Wolverton DE, et al. Computer-aided diagnosis (CAD) of breast lesions: An interactive demonstration. *Radiology* 209 (P):520, 1998. Scientific exhibit presented at the *84th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1998. (Cum Laude Award)

28. **Jiang Y**. A computer-aided diagnostic scheme for classification of clustered microcalcifications in mammograms. *Medical Physics* 26:1018, 1999.

29. **Jiang Y**, Nishikawa RM, Schmidt RA, Toledano AY, Doi K. Reducing radiologists' variability in the interpretation of mammograms with computer-aided diagnosis (CAD). *Medical Physics* 26:1081, 1999. Presented at the *41st Annual Meeting of the American Association of Physicists in Medicine*, Nashville, TN, 1999.

30. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Comparison of independent double reading and computer-aided diagnosis (CAD) for the diagnosis of breast lesions. *Radiology* 213(P):323, 1999. Presented at the *85th Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 1999.

31. Giger ML, Nishikawa RM, Huo Z, **Jiang Y**, Venta LA, Doi K, et al. Computer-aided diagnosis (CAD) in breast imaging. *Radiology* 213(P):507, 1999. Scientific exhibit presented at the *85th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1999.

32. Huo Z, Giger ML, Vyborny CJ, **Jiang Y**, Nishikawa RM, Engelman RM. Effectiveness of computer aid for radiologist's classification of mammographic mass lesions. *Radiology* 213(P):200-201, 1999.

33. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Three potential benefits of computer-aided diagnosis (CAD) in breast cancer diagnosis. *Radiology* 217(P):628, 2000. Scientific exhibit presented at the *86th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2000.

34. Nishikawa RM, Giger ML, **Jiang Y**, Huo Z, Vyborny CJ, Jokich PM, et al. Implementation of computer-aided diagnosis (CAD) into the clinical mammography work flow. *Radiology* 217(P):626, 2000. Scientific exhibit presented at the *86th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2000. (Cum Laude Award)

35. **Jiang Y**, Metz CE. A new method for combining radiologists' and a computer's diagnostic assessments. *Radiology* 221(P):424, 2001. Presented at the *87th Scientific Assembly and Annual Meeting of Radiological Society of North America*, Chicago, IL, 2001.

36. Giger ML, Nishikawa RM, Huo Z, **Jiang Y**, Horsch KJ, Hendrick RE, et al. Multi-modality workstation for computer-aided diagnosis (CAD) in breast imaging. *Radiology* 221(P):698, 2001. Scientific exhibit presented at the *87th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2001. (Certificate of Merit Citation Award)

37. **Jiang Y**. Uncertainty of artificial neural network output. *Medical Physics* 29:1323, 2002. Presented at the *44th Annual Meeting of the American Association of Physicists in Medicine*, Montreal, Canada, 2002.

38. **Jiang Y**, Nishikawa RM, Giger ML, Papaioannou J, Lan L, Vyborny CJ, et al. On-line demonstration of computer-aided diagnosis (CAD) of malignant and benign breast lesions. *Radiology* 225(P):683, 2002. Educational exhibit presented at the *88th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2002. (Excellence in Design Award)

39. **Jiang Y**, Schmidt RA, D'Orsi CJ, Vyborny CJ, Nishikawa RM, Paquerault S. Classification of malignant and benign clustered microcalcifications based on computer-extracted lesion features and radiologist-provided BI-RADS description. *Radiology* 225(P):497, 2002. Presented at the *88th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2002.

40. Paquerault S, **Jiang Y**, Nishikawa RM, Schmidt RA, D'Orsi CJ. Computer BI-RADS analysis of clustered microcalcifications in mammograms. *Medical Physics* 29:, 2002.

41. Paquerault S, **Jiang Y**, Yarusso LM, Papaioannou J, Nishikawa RM. Potential improvement in computerized classification of malignant mammographic clustered microcalcifications using a novel segmentation method. *Medical Physics* 30:1367, 2003.

42. Peng Y, **Jiang Y**, Chen W, Yang XJ, Brendler CB, Han X. Comparison of artificial neural network and multivariate linear discriminant analysis in the prediction of extra-capsular extension of prostate cancer. *Medical Physics* 30:1368-1369, 2003.

43. Liu B, **Jiang Y**. Training artificial neural networks (ANNs) with multiple target values for two-class classification problems. *Medical Physics* 30:1367, 2003.

44. Liu B, Metz CE, **Jiang Y**. ROC comparison of three methods of analyzing information derived from multiple images of the same patient with application to computer-aided diagnosis (CAD). In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 425-426, 2003.

45. Zur RM, **Jiang Y**. Avoiding overfitting and increasing generalizability of artificial neural networks in CAD by training with jitter. In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 390, 2003.

46. Paquerault S, Yarusso LM, Nishikawa RM, Papaioannou J, Edwards AV, **Jiang Y**. Observer evaluation and CAD performance of a radial gradient-based segmentation method for mammographic microcalcifications. In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 389, 2003.

47. Rana R, **Jiang Y**, Schmidt RA, Liu B, Sennett C, Chambliss J, Abe H, Lunning N. Independent evaluation of computer classification of malignant and benign calcifications in full-filed digital mammograms. *American Journal of Roentgenology* 182 (supplement):30, 2004.

48. Liu B, **Jiang Y**, Rana R. Effect of radiologists' variability on computer performance in classifying malignant and benign microcalcifications in mammograms. *Medical Physics* 31:1795, 2004.

49. Zur R, **Jiang Y**. Variability in the outputs of Bayesian artificial neural networks. *Medical Physics* 31:1795, 2004.

50. Giger ML, Nishikawa RM, **Jiang Y**, Newstead GM, Schmidt RA, Metz CE, et al. Integration of multi-modality breast CAD into the clinical workflow. In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 809, 2004. InfoRad exhibit presented at the *90th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2004. (Certificate of Merit Award)

51. Nishikawa RM, **Jiang Y**. The role of computer-aided detection (CAD) in screening mammgoraphy. In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 717, 2004. Educational exhibit presented at the *90th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 2004.

52. Liu B, Metz CE, **Jiang Y**. Effect of correlation on combing diagnostic information from two images of the same patient. In: *Radiological Society of North America scientific assembly and annual meeting program*. Oak Brook, IL: Radiological Society of North America, 448, 2004.

Non-Abstracted Proffered Presentations, Posters, and Scientific Exhibits:

1. **Jiang Y**, Chai M, Boughton RI. Quenching of ordinary superconductivity in thin films in contact with bulk 1-2-3 superconductor. Presented at the *Ohio Section Meeting of the American Physical Society*, Bowling Green, OH, 1990.

2. Doi K, Giger ML, MacMahon H, Hoffmann KR, Katsuragawa S, **Jiang Y**, et al. Clinical radiology and computer-aided diagnosis: potential partners in medical diagnosis? Scientific exhibit presented at the *76th Scientific Assembly and Annual Meeting of the Radiological Society of North America*, Chicago, IL, 1990.

3. **Jiang Y**, Nishikawa RM, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Analysis of the contrast characteristics of mammographic microcalcifications for computer-aided diagnosis. Presented at the *Optical Engineering Midwest Conference*, Chicago, IL, 1992.

4. Giger ML, Nishikawa RM, Schmidt RA, Vyborny CJ, Lu P, **Jiang Y**, Huo Z, Papaioannou J, Wu Y, Cox S, Kunst R, Bick U, Rosculet K. Preliminary evaluation of an "intelligent" mammography workstation. Poster presented at the *Medical Imaging VII Conference*, Newport Beach, CA, 1993.

5. **Jiang Y**, Nishikawa RM, Wolverton DE, Giger ML, Doi K, Schmidt RA, Vyborny CJ. Mammographic feature analysis of clustered microcalcifications for classification of breast cancer and benign breast diseases. Presented at the *16th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Baltimore, MD, 1994. (Region 4 finalist in the Engineering in Medicine and Biology Society Whitaker Foundation Student Paper Competition)

6. **Jiang Y**, Nishikawa RM, Metz CE, Wolverton DE, Schmidt RA, Papaioannou J, Doi K. A computer-aided diagnostic scheme for classification of malignant and benign clustered microcalcifications in mammograms. Presented at the *Third International Workshop on Digital Mammography*, Chicago, IL, 1996.

7. **Jiang Y**, Nishikawa RM, Wolverton DE, Metz CE, Schmidt RA, Doi K. Computerized classification of malignant and benign clustered microcalcifications in mammograms. Presented at the *19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Chicago, IL, 1997.

8. **Jiang Y**, Nishikawa RM, Papaioannou J. Requirement of microcalcification detection for computerized classification of malignant and benign clustered microcalcifications. Presented at *SPIE International Symposium: Medical Imaging 1998*, San Diego, CA, 1998.

9. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Benefits of computer-aided diagnosis in mammographic diagnosis of malignant and benign clustered microcalcifications. Presented at the *4th International Workshop on Digital Mammography*, Nijmegen, The Netherlands, 1998.

10. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Giger ML, Doi K. Improvement in radiologists' diagnosis of malignant and benign clustered microcalcifications by the use of computer-aided diagnosis (CAD). Presented at the *1st International Workshop on Computer-Aided Diagnosis*, Chicago, IL, 1998.

11. Schmidt RA, Nishikawa RM, **Jiang Y**, Metz CE, Wolverton DE, Doi K. Can computers help radiologists decide who needs a breast biopsy? Scientific exhibit presented at the *4th International Workshop on Digital Mammography*, Nijmegen, The Netherlands, 1998.

12. **Jiang Y**, Nishikawa RM. Radiologists' ability of using computer-aided diagnosis (CAD) to improve breast biopsy recommendations. Presented at *SPIE International Symposium: Medical Imaging 1999*, San Diego, CA, 1999.

13. **Jiang Y**, Nishikawa RM, Schmidt RA, Toledano AY, Doi K. The potential of computer-aided diagnosis (CAD) to reduce variability in radiologists' interpretation of mammograms. Presented at the *Eighth Far West Image Perception Conference*, Morley, Alberta, Canada, 1999.

14. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Relative gains in diagnostic accuracy between computer-aided diagnosis and independent double reading. Presented at *SPIE International Symposium: Medical Imaging 2000*, San Diego, CA, 2000.

15. **Jiang Y**, Nishikawa RM, Venta LL, Maloney MM, Giger ML. Computer classification of malignant and benign microcalcifications in small-field digital mammograms. Presented at the *5th International Workshop on Digital Mammography*, Toronto, Canada, 2000.

16. **Jiang Y**, Nishikawa RM, Schmidt RA, Metz CE, Doi K. Multiple benefits of computer-aided diagnosis (CAD) in the diagnosis of malignant and benign breast lesions. Presented at the *World Congress on Medical Physics and Biomedical Engineering*, Chicago, IL, 2000.

17. **Jiang Y**, Metz CE. An optimal method for combining two correlated diagnostic assessments with application to computer-aided diagnosis. Presented at *SPIE International Symposium: Medical Imaging 2001*, San Diego, CA, 2001.

18. **Jiang Y**. Uncertainty in the output of artificial neural networks. Presented at *Medical Image Perception Conference IX*, Airlie Conference Center, Warrenton, VA, 2001.

19. **Jiang Y**. Comparison of student's t-test and the Dorfman-Berbaum-Metz (DBM) method for the statistical comparison of competing diagnostic modalities. Presented at *SPIE International Symposium: Medical Imaging 2002*, San Diego, CA, 2002.

20. **Jiang Y**, Nishikawa RM, Schmidt RA, D'Orsi CJ, Vyborny CJ, Giger ML, Lan L, Huo Z, Edwards AV. Comparison of BI-RADS lesion descriptors and computer-extracted image features for computer classification of malignant and benign breast lesions. Presented at the *6th International Workshop on Digital Mammography*, Bremen, Germany, 2002.

21. Nishikawa RM, Salfity MF, **Jiang Y**, Papaioannou J. Improving the automated classification of clustered calcifications on mammograms through the improved detection of individual calcifications. Poster presented at *SPIE International Symposium: Medical Imaging 2002*, San Diego, CA 2002.

22. Salfity MF, Nishikawa RM, **Jiang Y**, Papaioannou J. Improvement in the automatic detection of individual microcalcifications to integrate a cluster-detection and a cluster-classification schemes. Poster presented at the *6th International Workshop on Digital Mammography*, Bremen, Germany, 2002.

23. **Jiang Y**, Paquerault S, Nishikawa RM, Giger ML, Schmidt RA, D'Orsi CJ, Vyborny CJ, Metz CE. Computer-aided diagnosis of malignant and benign breast lesions in mammograms. Poster presented at the *Era of Hope 2002 Department of Defense Breast Cancer Research Program Meeting*, Orlando, FL, 2002.

40. **Jiang Y**, Salfity MF, Chen V, Nishikawa RM, Papaioannou J, Edwards AV, Paquerault S. Effect of radiologists' variability on the performance of computer classification of malignant and benign calcifications in mammograms. Presented at *SPIE International Symposium: Medical Imaging 2003*, San Diego, CA, 2003.

41. Liu B, **Jiang Y**. Proper use of multiple images of the same patient in computer-aided diagnosis (CAD) based on considerations of ROC analysis. Poster presented at *Medical Image Perception Conference X*, Durham, NC, 2003.

42. **Jiang Y,** Liu B**.** Training artificial neural network with multiple target values to approximate the ideal observer. Presented at *Medical Image Perception Conference X*, Durham, NC, 2003.

43. **Jiang Y**, Schmidt RA, Nishikawa RM, D'Orsi CJ, Vyborny CJ, Newstead GM. Use of BI-RADS lesion descriptors in computer-aided diagnosis of malignant and benign breast lesions. Presented at *SPIE International Symposium: Medical Imaging 2004*, San Diego, CA, 2004.

44. **Jiang Y**, Sacks W, Metz CE. Effect of observer inattention in a detection task on ROC analysis. Presented at *SPIE International Symposium: Medical Imaging 2005*, San Diego, CA, 2005.

45. **Jiang Y**. A method for assessing the uncertainty in feature selection tasks. Presented at *SPIE International Symposium: Medical Imaging 2006*, San Diego, CA, 2006.

Patents:

1. Nishikawa RM, **Jiang Y**, Ashizawa K, Doi K. Methods for improving the accuracy in differential diagnosis in radiologic examinations. US Patent 6,058,322.

2. Nishikawa RM, Salfity MF, **Jiang Y**. The use of *a priori* information to improve the detection of microcalcifications in mammograms. US Patent pending.