CURRICULUM VITAE

Samuel G. Armato III, Ph.D.

Education

1987	B.A. with General Honors (Physics), The University of Chicago
1997	Ph.D. (Medical Physics), The University of Chicago

Professional Experience

Summer of 1983	Research Assistant, Pre-College Program, Physics Division, Argonne National Laboratory, Argonne, Illinois
Summers of 1984 and 1985	Research Assistant, Physics Division, Argonne National Laboratory, Argonne, Illinois
Summer of 1986	Research Assistant, National Radio Astronomy Observatory, Green Bank, West Virginia
Summer of 1987	Research Assistant, Fermi National Accelerator Laboratory, Batavia, Illinois
October 1991 – September 1994	NIH Pre-Doctoral Trainee, Department of Radiology, The University of Chicago, Chicago, Illinois
October 1994 – June 1997	Research Assistant, Department of Radiology, The University of Chicago, Chicago, Illinois
July 1997 – September 1997	Research Project Professional, Department of Radiology, The University of Chicago, Chicago, Illinois
September 1997 – June 1999	Instructor, Department of Radiology, The University of Chicago, Chicago, Illinois
July 1999 – June 2006	Assistant Professor, Department of Radiology, The University of Chicago, Chicago, Illinois
2003 – June 2006	Assistant Professor, Committee on Medical Physics, The University of Chicago, Chicago, Illinois
July 2006 – present	Associate Professor with tenure, Department of Radiology, The University of Chicago, Chicago, Illinois
July 2006 – present	Associate Professor, Committee on Medical Physics, The University of Chicago, Chicago, Illinois
July 2007 – present	Associate Professor with tenure, The College, The University of Chicago, Chicago, Illinois
April 2013 – present	Chair, Committee on Medical Physics, The University of Chicago, Chicago, Illinois

April 2013 – present	Director, Graduate Program in Medical Physics, The University of Chicago, Chicago, Illinois

Professional Associations

Member, American Association of Physicists in Medicine (AAPM)

Member, Society of Photo-Optical Instrumentation Engineers (SPIE)

Member, Association of University Radiologists (AUR)

Member, International Association for the Study of Lung Cancer (IASLC)

Honors

1984, 1985, 1986	Dean's List, The University of Chicago
1985	Goethe Prize for Excellence in the Study of Germanic Languages, The University of Chicago
1986	Student Marshal, The University of Chicago
1987	Phi Beta Kappa, The University of Chicago
1991	Dean's Merit Stipend Supplement, The University of Chicago
1994	Best Presentation, Journal Club of the Graduate Programs in Medical Physics, The University of Chicago
1998	Gaylord Donnelley Award in Pulmonary Medicine, American Lung Association of Metropolitan Chicago
August 1998	2nd Place Best Presentation, Young Investigators Symposium, 40th Annual Meeting of the American Association of Physicists in Medicine
December 1998	Exhibit Excellence in Design Award, 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America
May 1999	Distinguished Alumnus Award, Hoffman Estates High School, Hoffman Estates, Illinois
February 2001	Honorable Mention Poster Award, SPIE Medical Imaging 2001 Symposium
2002	Biographical profile selected for inclusion in *Who's Who in Medicine and Healthcare 2002-2003, 4th Edition*
2002	Kurt Rossmann Award for Excellence in Teaching, Department of Radiology, The University of Chicago
June – August 2009	Raine Visiting Professor, University of Western Australia, Perth, Western Australia, Australia

2011	Selected as Research Fellow, Japanese Society for the Promotion of Science (unable to fulfill fellowship due to medical reasons)
2012	Kurt Rossmann Award for Excellence in Teaching, Department of Radiology, The University of Chicago

Research Support (as Principal Investigator)

Current grants

1. NSF Research Experience for Undergraduates, "MedIX: MEDical Informatics eXperiences in undergraduate research," Samuel G. Armato III, P.I. of subcontract with DePaul University, 2/01/11-1/31/14. Total direct costs $87,068 (3% effort).

2. The University of Chicago Institute for Translational Medicine Preclinical Pilot Translational Study Award, "Development of a Novel Tool for Measuring Upper Airway Inflammation: 3D Computer Imaging Analysis," Samuel G. Armato III, P.I., 9/21/10-9/6/11. Total direct costs $35,768 (no faculty salary).

3. NIH/NCRR S10 RR027969, "Acuo PACS System on Blade Server Infrastructure," Samuel G. Armato III, P.I., 5/1/11-4/30/12. Total direct costs $357,000 (no faculty salary).

Previous grants

1. NIH/NCI, R01 CA102085, "Computerized Analysis of Mesothelioma on CT Scans," Samuel G. Armato III, P.I., 6/01/06-5/31/10. Total direct cost $1,000,000 (30% effort).

2. NIH/NCI, U01 CA91090, "Standard Database for CT Lung Images," Samuel G. Armato III, P.I., 8/20/01-7/31/07. Total direct cost $965,000 (20% effort).

3. NIH/NCI, R01 CA102085 S1, "Computerized Analysis of Mesothelioma on CT Scans—Supplement for IDRI and RIDER projects," Samuel G. Armato III, P.I., 6/01/06-5/31/07. Total direct cost $120,187 (31% effort).

4. NIH/NCI, U01 CA91090 S2, "Standard Database for CT Lung Images—Supplement for LIDC," Samuel G. Armato III, P.I., 8/20/05-7/31/07. Total direct cost $51,343 (2% effort—extended year).

5. NIH/NCI, U01 CA91090 S2, "Standard Database for CT Lung Images—Supplement for IDRI," Samuel G. Armato III, P.I., 8/20/05-7/31/07. Total direct cost $50,471 (3% effort—extended year).

6. NIH/NCI, R01 CA83908, "Computer-Aided Diagnosis in CT of the Thorax," Samuel G. Armato III, P.I., 9/01/00-8/31/05. Total direct cost $875,000 (50% effort).

7. Mesothelioma Applied Research Foundation, "Computerized Analysis of Mesothelioma on Thoracic Computed Tomography Scans," Samuel G. Armato III, P.I., 11/01/01-10/31/03. Total direct cost $100,000 (15% effort).

8. Grant Healthcare Foundation, "Assessment of Computer-Aided Diagnosis in the Detection of Lung Nodules on Computed Tomography Scans," Samuel G. Armato III, P.I., 1/01/00-12/31/00. Total direct cost $40,000 (14% effort).

9. American Lung Association of Metropolitan Chicago / Gaylord and Dorothy Donnelley Foundation, "Automated Emphysema Analysis in Computed Tomography," Samuel G. Armato III, P.I., 7/1/98-6/30/00. Total direct cost $50,000 (20% effort).

Professional Activities

1997	Reviewer, 19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society
1997 – present	Reviewer, *Medical Physics*
1998	Reviewer, 40th Annual Meeting of the American Association of Physicists in Medicine
1998, 2006 – present	Reviewer, *Journal of Digital Imaging*
August 1998	Scientific Session Co-Chair, 40th Annual Meeting of the American Association of Physicists in Medicine
September 1998	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program
1999 – present	Reviewer, *Radiology*
1999	Reviewer, 41st Annual Meeting of the American Association of Physicists in Medicine
July 1999	Scientific Session Co-Chair, 41st Annual Meeting of the American Association of Physicists in Medicine
August 1999	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program
2000	Reviewer, 2000 World Congress on Medical Physics and Biomedical Engineering
2000 – present	Reviewer, *Academic Radiology*
2000 – present	Reviewer, *IEEE Transactions on Medical Imaging*
May 2000	Grant Reviewer, University of California Tobacco-Related Disease Research Program
July 2000	Scientific Session Chair, 2000 World Congress on Medical Physics and Biomedical Engineering
August 2000	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program
November 2000	Scientific Session Presiding Officer, 86th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2001	Reviewer, 43rd Annual Meeting of the American Association of Physicists in Medicine

February 2001	External Reviewer, Diagnostic Imaging Study Section (Special Emphasis Panel), National Institutes of Health
May 2001	Grant Reviewer, U.S. Army Medical Research and Materiel Command Prostate Cancer Research Program
August 2001	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program
October 2001	External Reviewer, Diagnostic Imaging Study Section, National Institutes of Health
2001 – present	Member, Lung Image Database Consortium Steering Committee, National Cancer Institute
2001 – present	Chair, Lung Image Database Consortium Inclusion Criteria Subcommittee, National Cancer Institute
2001 – present	Chair, Lung Image Database Consortium Evaluation Metrics Subcommittee, National Cancer Institute
November 2001	Scientific Session Presiding Officer, 87th Scientific Assembly and Annual Meeting of the Radiological Society of North America
February 2002	Ad Hoc Member, Diagnostic Imaging Study Section, National Institutes of Health
May 2002	Ad Hoc Grant Reviewer, University of California Tobacco-Related Disease Research Program
June 2002	Invited Panelist, Computer Assisted Radiology and Surgery 16th International Congress and Exhibition
2002, 2005 – 2007	Guest Associate Editor, *Medical Physics*
October 2002	Grant Reviewer, Biomedical Research Technology Special Emphasis Panel, National Center for Research Resources, National Institutes of Health
2002 – 2003	Vice-Chair, Lung Image Database Consortium Steering Committee, National Cancer Institute
December 2002	Scientific Session Presiding Officer, 88th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2003 – present	Reviewer, *Lung Cancer*
2003	Reviewer, *Veterinary Radiology and Ultrasound*
2003	Reviewer, 45th Annual Meeting of the American Association of Physicists in Medicine
February 2003	Session Chair, SPIE Medical Imaging Symposium

April 2003	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program Concept Award Program
June 2003	Session Chair, Computer Assisted Radiology and Surgery 17th International Congress and Exhibition
August 2003	Scientific Session Chair, 45th Annual Meeting of the American Association of Physicists in Medicine
August 2003	Scientific Symposium Director, 45th Annual Meeting of the American Association of Physicists in Medicine
December 2003	Scientific Session Presiding Officer, 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2004	Reviewer, *Optical Engineering*
2004	Reviewer, 46th Annual Meeting of the American Association of Physicists in Medicine
February 2004	Session Chair, SPIE Medical Imaging Symposium
May 2004	External Reviewer, Special Emphasis Panel: Biodefense and SARS Product Development, National Institute of Allergy and Infectious Diseases, National Institutes of Health
July 2004	Scientific Session Chair, 46th Annual Meeting of the American Association of Physicists in Medicine
July 2004	Invited Panelist, 46th Annual Meeting of the American Association of Physicists in Medicine
November 2004	Scientific Session Presiding Officer, 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2005	Director, Categorical Course in Diagnostic Radiology Physics, 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America
2005	Reviewer, 47th Annual Meeting of the American Association of Physicists in Medicine
2005	Grant Reviewer, Australia National Health and Medical Research Council
2005	Reviewer, *American Journal of Roentgenology*
2005 – present	Reviewer, *International Journal of Biomedical Imaging*
February 2005	Session Chair, SPIE Medical Imaging Symposium
March 2005	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program Concept Award Program

April 2005	Grant Reviewer, U.S. Army Medical Research and Materiel Command Prostate Cancer Research Program
December 2005	Scientific Session Presiding Officer, 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America
2006 – present	Member, Journal Business Management Committee of the American Association of Physicists in Medicine
2006 – 2011	Member, Education and Training of Medical Physicists Committee of the American Association of Physicists in Medicine
2006 – present	Reviewer, *International Journal of Computer Assisted Radiology and Surgery*
February 2006	Session Chair, SPIE Medical Imaging Symposium
April 2006	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program Concept Award Program
May 2006	Ad Hoc Grant Reviewer, University of California Tobacco-Related Disease Research Program
Summer 2006	Mentor, American Cancer Society, Illinois Division, Summer High School Research Program
June 2006	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program Pre-Doctoral Training Awards
August 2006	Grant Reviewer, U.S. Army Medical Research and Materiel Command Breast Cancer Research Program
October 2006	Conference Co-Chair, 8th International Conference of the International Mesothelioma Interest Group
October 2006	Imaging Workshop Co-Chair, 8th International Conference of the International Mesothelioma Interest Group
November 2006	Chair, Update Course in Diagnostic Radiology Physics, 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America
November 2006	Scientific Session Presiding Officer, 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America
2007	Co-Chair, Reference Image Database for Evaluation of Response Steering Committee, National Cancer Institute
July 2007	Director, Imaging Continuing Education Course: Multimodality Medical Imaging, 49th Annual Meeting of the American Association of Physicists in Medicine
2007 – present	Member, Physics Subcommittee of the Education Exhibits Committee, Radiological Society of North America

2007 – 2009	Steering Committee Member, Society of Directors of Academic Medical Physics Programs
November 2007	Scientific Session Presiding Officer, 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America
November 2007	Chair, Update Course in Diagnostic Radiology Physics, 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America
2008 – present	Member, Editorial Board, *Medical Physics*
2008 – present	Associate Editor, *Medical Physics*
2008 – present	Member, Computer-Aided Detection in Diagnostic Imaging (CAD) Subcommittee of the American Association of Physicists in Medicine
2008 – present	Reviewer, *Medical Image Analysis*
2008	Reviewer, 50th Annual Meeting of the American Association of Physicists in Medicine
2008 – present	Program Committee, SPIE Medical Imaging, Computer-Aided Diagnosis Conference
July 2008	Scientific Session Chair, 50th Annual Meeting of the American Association of Physicists in Medicine
July 2008	Director, Imaging Continuing Education Course: Multimodality and Multidimensional Imaging, 50th Annual Meeting of the American Association of Physicists in Medicine
September 2008	Scientific Session Chair, 9th International Conference of the International Mesothelioma Interest Group
November 2008	Grant Reviewer, Medical Research Council, London, United Kingdom
November 2008	Scientific Session Presiding Officer, 94th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2009	Vice-Chair, Journal Business Management Committee of the American Association of Physicists in Medicine
2009 – present	Vice-Chair, Computer-Aided Detection in Diagnostic Imaging (CAD) Subcommittee of the American Association of Physicists in Medicine
2009 – 2011	Member, Imaging Physics Committee of the American Association of Physicists in Medicine
2009 – present	Treasurer, Society of Directors of Academic Medical Physics Programs
2009	Reviewer, *IEEE Transactions on Biomedical Engineering*

February 2009	Scientific Session Chair, SPIE Medical Imaging 2009
June 2009	Grant Reviewer, Dutch Technology Foundation STW
November 2009	Scientific Session Presiding Officer, 95th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2010 – present	Chair, Journal Business Management Committee of the American Association of Physicists in Medicine
2010 – present	Member, Administrative Council of the American Association of Physicists in Medicine
2010 – present	Member, Electronic Media Coordinating Committee of the American Association of Physicists in Medicine
2010 – present	Member, Finance Committee of the American Association of Physicists in Medicine
2010 – 2011	Member, Medical Physicists as Educators Subcommittee of the American Association of Physicists in Medicine
2010 – present	Member, Task Group No. 208 (Advertising Revenue and Policy) of the American Association of Physicists in Medicine
2010	Reviewer, *Acta Radiologica*
2010 – present	Treasurer, International Mesothelioma Interest Group
2010 – present	Member, Board of Directors, International Mesothelioma Interest Group
January 2010	Grant Reviewer, U.S. Army Medical Research and Materiel Command Lung Cancer Research Program
February 2010	Scientific Session Chair, SPIE Medical Imaging 2010
June 2010	Grant Reviewer, Special Emphasis Panel: Quantitative Imaging for Evaluation of Responses to Cancer Therapies, National Institutes of Health
July 2010	Director, Imaging Continuing Education Course: Multimodality and Multidimensional Imaging, 51st Annual Meeting of the American Association of Physicists in Medicine
October 2010	External Ph.D. Thesis Examiner, School of Mechanical Engineering, University of Western Australia
November 2010	Scientific Session Presiding Officer, 96th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2011	Reviewer, 53rd Annual Meeting of the American Association of Physicists in Medicine

2011	Member, Clinical Translational Science Awards Imaging Working Group
2011	Ad Hoc Member, Grant Review Integration Panel, U.S. Army Medical Research and Materiel Command Peer-Reviewed Cancer Research Program Visionary Postdoctoral Fellowship Awards
June 2011	Grant Reviewer, Special Emphasis Panel: Quantitative Imaging for Evaluation of Responses to Cancer Therapies, National Institutes of Health
November 2011	CME Poster Discussion Session Host, 97th Scientific Assembly and Annual Meeting of the Radiological Society of North America
November 2011	External Ph.D. Thesis Examiner, School of Mechanical Engineering, University of Western Australia
2012	Reviewer, 54th Annual Meeting of the American Association of Physicists in Medicine
July 2012	Scientific Session Chair, 54th Annual Meeting of the American Association of Physicists in Medicine
July 2012	Moderator, Professional Symposium, 54th Annual Meeting of the American Association of Physicists in Medicine
September 2012	Poster Session Co-Chair/Discussant, 11th International Conference of the International Mesothelioma Interest Group
September 2012	Scientific Session Co-Chair, 11th International Conference of the International Mesothelioma Interest Group
September 2012	Imaging Workshop Co-Chair, 11th International Conference of the International Mesothelioma Interest Group
November 2012	CME Poster Discussion Session Host, 98th Scientific Assembly and Annual Meeting of the Radiological Society of North America
2013	Reviewer, 55th Annual Meeting of the American Association of Physicists in Medicine
2013 – present	Co-chair, Quantitative Imaging Biomarker Alliance (QIBA) CT Volumetry Committee
February 2013	Scientific Session Chair, SPIE Medical Imaging 2013
March 2013, 2014	Grant Reviewer, Israel Science Foundation
June 2013	Scientific Session Chair, CARS 2013 Computer Assisted Radiology and Surgery 27th International Congress and Exhibition
June 2013	Invited Panelist, CARS 2013 Computer Assisted Radiology and Surgery 27th International Congress and Exhibition

October 2013	Scientific Session Co-Chair, International Association for the Study of Lung Cancer (IASLC) 15th World Conference on Lung Cancer

University Activities

September 1991 – June 1996	Resident Head, Chamberlin House, Burton-Judson Courts Dormitory, The University of Chicago
1998 – 2001	Associate Member, The University of Chicago Cancer Research Center
2001 – present	Member, The University of Chicago Cancer Research Center
2002 – 2008, 2011 – 2012	Pritzker School of Medicine Summer Research Program cluster group leader
2004 – 2008	Chair, Department of Radiology's Committee on Human Subjects Research
2004, 2006	Reviewer, The University of Chicago American Cancer Society Institutional Research Grant Review Committee
2005 – 2013	Member, BSD/UCH Institutional Review Board Committee C
2006 – 2008	Program Director, Tumor Imaging Response Core, The University of Chicago Cancer Research Center
2007 – present	Member, Clinical Trials Review Committee, The University of Chicago Cancer Research Center
2007 – 2008	Member, Imaging Research Institute Steering Committee
2008	Reviewer, The University of Chicago Cancer Research Center / Argonne National Laboratory collaborative projects
2008 – present	Coordinator, Physics Education for Radiology Residents
2008 – present	Faculty Director, Human Imaging Research Office
2010	Reviewer, The University of Chicago Comprehensive Cancer Center Pilot Project Grants
2011 – present	Member, BSD-UCMC Clinical Research Policy Board
2012 – present	Member, BSD-UCMC Research Informatics Data Use Committee
September 2013	Invited Colloquium Leader, Aims of Education Address, Alper House, Max Palevsky Residential Commons, The College

Committee on Medical Physics Activities

1993 – 1994	Co-President of the Medical Physics Graduate Students
1998 – present	Member, Curriculum Committee

2013 – present Chair, Committee on Medical Physics

2013 – present Director, Graduate Program in Medical Physics

Teaching Experience

Courses Taught

Spring 1999 Radiology/Radiation Oncology 387
Medical Imaging I
(instructor for one-third of course)

Spring 1999 – 2001 – 2002 Radiology/Radiation Oncology 342
Practicum of Medical Imaging I
(instructor for one-fifth of course)

Autumn 2000 – 2001 – 2002 – 2003 – 2004 – 2005 – 2006 – 2007 – 2008 – 2009 – 2010 – 2011 – 2012 – 2013 Radiology/Radiation Oncology 350
Interactions of Radiation with Matter
(instructor for one-half of course)

Winter 2000 – 2001 – 2002 – 2003 – 2004 – 2007 – 2008 – 2009 – 2010 – 2011 – 2012 Radiology 396 / Computer Science 356
Image Processing and Computer Vision
(course coordinator, co-instructor for one-half of course)

Autumn 1998 – Spring 2001 – Autumn 2001 – Winter 2002 – Winter 2003 – Spring 2003 – Summer 2005 – Winter 2006 – Spring 2007 – Summer 2007 – Spring 2009 Radiology/Radiation Oncology 421
Research in the Physics of Diagnostic Radiology
(instructor)

Winter 2010 Spring 2010 Spring 2013	
Spring 2005 2006 2007 2009 2010 2011 2012	BIOS 29326 Introduction to Medical Physics (instructor for one-fifth of course)
Winter 2008	RADI 30600 Medical Imaging (instructor for one-tenth of course)
Autumn 2007 Winter 2008 Summer 2008 (2 sessions) Autumn 2008 (2 sessions) Summer 2009 Autumn 2009 (2 sessions) Summer 2010 (2 sessions) Autumn 2010 (2 sessions)	RADI 32100 Reading Tutorial in Radiology (instructor for one-tenth of course)
Summer 2011 Autumn 2011	RADI 32500 Senior Elective in Radiology (instructor for one-tenth of course)
Summer 2011 Autumn 2011 Spring 2012 Summer 2012	RAD/MED Clerkship I Radiology Clerkship (one lecture)

Teaching Assistantships

Autumn 1985	Physics 131 General Physics I (variant B) (grader)
Winter 1986	Physics 132 General Physics II (variant B) (grader)
Spring 1986	Physics 123 General Physics III (variant A) (grader)
Autumn 1986	Physics 225 Intermediate Electricity and Magnetism (grader)

Winter 1987	Physics 142 General Physics II (honors) (grader)
Spring 1987	Physics 143 General Physics III (honors)
Autumn 1993	Radiology/Radiation Oncology 350 Interaction of Radiation with Matter I
Summer 1994	Radiology/Radiation Oncology 343 Practicum in the Physics of Diagnostic Radiology

Tutoring

1986 – 1987	College Tutor Program (Physics), The University of Chicago

Students Supervised

The University of Chicago
Medical Physics Graduate Students

2003 – 2010	William F. Sensakovic Research on the automated analysis of mesothelioma on CT scans (doctoral thesis advisor)
2006 – 2008	Martin King Research on computer-assisted assessment of cardiac CT scans (doctoral thesis committee member)
2007	Laura M. Yarusso Research on the effect of image quality on CAD for screen-film and digital mammography (doctoral thesis committee member)
2007 – 2011	Neal B. Corson Research on the automated analysis of pulmonary arterial hypertension on CT scans (doctoral thesis advisor)
2009 – 2012	Zacariah E. Labby Research on the optimization of CT-based tumor response criteria for malignant pleural mesothelioma (doctoral thesis advisor)
2010 – present	Alexandra R. Cunliffe Research on the image-based analysis of normal tissue complications in radiotherapy for lung cancer (doctoral thesis co-advisor)

The University of Chicago
Medical Students

Summer of 1994	Kris Prieb (M.D., 1997, The University of Chicago) Research on detection of lung nodules in computed tomography (CT) images of the thorax (in conjunction with ML Giger, Ph.D.)
2002 – 2005	Geoffrey R. Oxnard (M.D., 2005, The University of Chicago) Research on the quantification of mesothelioma on CT images of the thorax (Pritzker School of Medicine Summer Research Program, mentor) (continuing research throughout medical school, mentor) awarded Honorable Mention by the Summer Research Program faculty awarded the Fentress Award in 2004, which supports deserving research performed by a non-Ph.D. Pritzker medical student during the senior year awarded the Franklin McLean Medical Student Research Award in 2005, which recognizes the Pritzker medical student who has performed the most meritorious research during medical school
Summer of 2003	Shailen Bhatia Research on the temporal comparison of mesothelioma on CT images of the thorax based on lung area measurements (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2003	Joseph L. Ogarek Research on the temporal comparison of mesothelioma on CT images of the thorax based on linear measurements (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2005	Michael Januszyk Research on the automated detection of pathologic change in temporal subtraction chest radiographs (Pritzker School of Medicine Summer Research Program, mentor) awarded Honorable Mention by the Summer Research Program faculty
Summer of 2006	Evan Smith Research on the automated assessment of pulmonary arterial hypertension in thoracic CT scans (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2006	Andrew Idowu Research on the automated assessment of therapy-induced perfusion change on CT scans (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2007	Michael T. Osborne Research on the area-based assessment of mesothelioma tumor growth (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2008	David Hwang Research on the geometric modeling of mesothelioma tumor growth (Pritzker School of Medicine Summer Research Program, mentor)

Summer of 2011	Jonathan Garneau Research on the quantitative assessment of sinus inflammation in CT scans of the head (Pritzker School of Medicine Summer Research Program, mentor)
Summer of 2012	Ashoke Khanwalkar Research on the natural history of mesothelioma tumor growth (Pritzker School of Medicine Summer Research Program, mentor)

The University of Chicago
Physics Undergraduate Students

1993	Kurt Thoroughman (B.A., 1993, The University of Chicago) Research on the dual-energy analysis of radiographic images of the spine (in conjunction with ML Giger, Ph.D.) (senior honors thesis work, co-reader)
Summer of 1995	Kensuke Arai Research on the detection of lung nodules on CT images of the thorax (in conjunction with ML Giger, Ph.D.)
1996 – 1997	Catherine J. Moran (B.A., 1997, The University of Chicago) Research on the detection of lung nodules on CT images of the thorax (in conjunction with ML Giger, Ph.D.) (senior honors thesis work, co-reader)
2000 – 2001	William F. Sensakovic (B.A., 2001, The University of Chicago) Research on the automated analysis of emphysema in thoracic CT images (senior honors thesis work, advisor)
2001 – 2002	Michael B. Altman (B.A., 2002, The University of Chicago) Research on the detection of lung nodules on CT images of the thorax (senior honors thesis work, advisor)
2003	Andrew Wilson (B.A., 2005, The University of Chicago) Research on the radial gradient index for reducing false-positive lung nodule detections on CT
Summer of 2005	Wynetta D. Harris Research on the automated analysis of thoracic CT scans
Summer of 2010	Matt Lee Research on the automated detection of pathologic change in temporal subtraction images of the chest (National Science Foundation Research Experiences for Undergraduates Program, mentor)

DePaul University, Chicago, Illinois
College of Computing and Digital Media (Graduate Students)

2009 – 2010	William H. Horsthemke Thesis research on quantitative analysis of lung nodules in thoracic CT scans (dissertation committee member)
2011 – present	Dmitriy Zinovev Thesis research on probabilistic multi-class machine learning approaches for radiologic decisions (dissertation committee member)

Illinois Institute of Technology, Chicago, Illinois
Computer Science and Applied Mathematics (Graduate Students)

1999 – 2000	SuChin Coutre (Ph.D., 2000, Illinois Institute of Technology) Thesis research on automated registration of radionuclide lung scans (dissertation committee member)
2004 – 2005	Changhua Wu (Ph.D., 2005, Illinois Institute of Technology) Thesis research on automated segmentation of pulmonary vessels in CT scans (dissertation committee member)

Undergraduate Students; other institutions

Summer of 1998	Mark Wasfy Undergraduate, Vanderbilt University, Nashville, Tennessee Research on the detection of lung nodules on CT images of the thorax
Summer of 2008	Samantha Passen Undergraduate, University of Michigan, Ann Arbor, Michigan Research on the mutual-information-based assessment of image quality in temporal subtraction images of the chest (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2010	Gina Yu Undergraduate, Harvard University, Cambridge, Massachusetts Research on the automated detection of pathologic change in temporal subtraction images of the chest (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2011	Brianna Knoll Undergraduate, University of Iowa, Iowa City, Iowa Research on change in CT-based gray-level features pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)

Summer of 2011	Michelle Ludwig Undergraduate, DePaul University, Chicago, Illinois Research on deformable registration accuracy for sequential CT scans pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2012	Rachel Tuohy Undergraduate, Texas A&M University, College Station, Texas Research on deformable registration accuracy for sequential CT scans pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2012	Xianhan (Mary) Fei Undergraduate, Brown University, Providence, Rhode Island Research on deformable registration accuracy for sequential CT scans pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2013	Julia Justusson Undergraduate, DePaul University, Chicago, Illinois Research on deformable registration accuracy for sequential CT scans pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2013	Bradley White Undergraduate, DePauw University, Greencastle, Indiana Research on deformable registration accuracy for sequential CT scans pre- and post-radiation therapy for lung cancer patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2013	Sabina Nilakhe Undergraduate, DePaul University, Chicago, Illinois Research on the computerized segmentation of anatomic regions in the mIBG images of neuroblastoma patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)
Summer of 2013	Jason Tam Undergraduate, The Cooper Union for the Advancement of Science and Art, New York, New York Research on the computerized segmentation of anatomic regions in the mIBG images of neuroblastoma patients (National Science Foundation Research Experiences for Undergraduates Program, mentor)

High School Students

Summer of 2006	Shan Wong American Cancer Society, Illinois Division, Summer High School Research Program Research on the detection of lung nodules on CT images of the thorax

Research Associates / Research Fellows Supervised

2002 – 2005	Arunabha S. Roy, Ph.D. Research on the detection of lung nodules on CT images of the thorax
2003 – 2004	Charles L. Croteau, D.O. Research on the automated analysis of temporal subtraction chest radiographs
2004 – 2005	Devang Doshi, M.D. Research on the automated analysis of temporal subtraction chest radiographs
2005 – 2008	Rachael Y. Roberts, M.D. Research on the automated analysis of pulmonary arterial hypertension, the automated analysis of adrenal gland perfusion, the automated assessment of mesothelioma tumor response, and the radiologic-pathologic correlation of lung nodules
2010 – 2011	William F. Sensakovic, Ph.D. Research on the automated analysis of mesothelioma on CT scans and the automated assessment of mucosal inflammation on the CT scans of chronic sinusitis patients

Original Peer-Reviewed Articles

J1. Kutschera W, Ahmad I, **Armato SG III**, Friedman AM, Gindler JE, Henning W, Ishii T, Paul M, Rehm KE: Spontaneous C-14 emission from Ra-223. *Physical Review C: Nuclear Physics* 32: 2036–2042, 1985.

J2. **Armato SG III**, Giger ML, MacMahon H: Computerized detection of abnormal asymmetry in digital chest radiographs. *Medical Physics* 21: 1761–1768, 1994.

J3. Difazio MC, MacMahon H, Xu X-W, Tsai P, Shiraishi J, **Armato SG III**, Doi K: Digital chest radiography: Effect of temporal subtraction images on detection accuracy. *Radiology* 202: 447–452, 1997.

J4. **Armato SG III**, Giger ML, MacMahon H, Chen C-T, Vyborny CJ: Automated registration of ventilation-perfusion images with digital chest radiographs. *Academic Radiology* 4: 183–192, 1997.

J5. **Armato SG III**, Giger ML, MacMahon H: Automated lung segmentation in digitized posteroanterior chest radiographs. *Academic Radiology* 5: 245–255, 1998.

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Reviews

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Editorials

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Invited Presentations

I1. **Armato SG III**: Lung cancer and the role of computed tomography. Marconi Medical Systems, Cleveland, Ohio, April 2000.

I2. **Armato SG III**: Computerized detection of lung nodules in CT scans. Radiation Oncology Research Conference (web conference), Massachusetts General Hospital, Boston, Massachusetts, March 2001.

I3. **Armato SG III** for the Lung Image Database Consortium: The Lung Image Database Consortium (LIDC): Mission, Motivation, and Members. Cancer Imaging Informatics Workshop, National Cancer Institute, Bethesda, Maryland, September 2002.

I4. **Armato SG III**: Computerized analysis of mesothelioma on thoracic computed tomography scans. Mesothelioma Applied Research Foundation Annual Meeting, Indianapolis, Indiana, November 2002.

I5. **Armato SG III**: Computerized analysis of thoracic CT scans: From nodules to mesothelioma. R2 Technology, Inc., Sunnyvale, California, January 2003.

I6. **Armato SG III**: Computer-aided diagnosis in thoracic CT: Applications and implementation. Duke University, Durham, North Carolina, March 2003.

I7. **Armato SG III**: The Lung Image Database Consortium: Toward a standard resource for CAD research. Computer Assisted Radiology and Surgery 17th International Congress and Exhibition, London, United Kingdom, June 2003.

I8. **Armato SG III** for the Lung Image Database Consortium: The Lung Image Database Consortium: Toward a standard resource for CAD research. U. S. Food and Drug Administration, Center for Devices and Radiological Health, Rockville, Maryland, July 2003.

I9. **Armato SG III**: CAD: Where we are and how we got here. 45th Annual Meeting of the American Association of Physicists in Medicine, San Diego, California, August 2003.

I10. **Armato SG III**: Enhanced visualization and quantification of lung cancers and other diseases of the chest. Lovelace Respiratory Research Institute Annual Symposium, Santa Fe, New Mexico, October 2003.

I11. **Armato SG III**: The role of computer vision for lung cancer detection in thoracic CT. Lovelace Respiratory Research Institute Annual Symposium, Santa Fe, New Mexico, October 2003.

I12. **Armato SG III**: Computerized analysis of mesothelioma on CT scans. 7th International Conference of the International Mesothelioma Interest Group, Brescia, Italy, June 2004.

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I14. **Armato SG III**: Computer-aided diagnosis. 90th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 2004.

I15. **Armato SG III**: The ABCs of CAD. DePaul University, Chicago, Illinois, August 2005.

I16. **Armato SG III**: Computerized analysis of mesothelioma on thoracic computed tomography scans. Second International Symposium on Malignant Mesothelioma, Las Vegas, Nevada, 2005. (poster and oral presentation)

I17. **Armato SG III**: Computer-aided diagnosis. 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 2005.

I18. **Armato SG III**: CAD for thoracic CT. Biomedical Engineering Society, University of Wisconsin, Madison, Wisconsin, April 2006.

I19. **Armato SG III**: Research in computer-aided diagnosis (CAD). Biomedical Informatics Workshop, DePaul University, Chicago, Illinois, October 2006.

I20. **Armato SG III**: The evolution of imaging-based tumor response evaluation in mesothelioma. 8th International Conference of the International Mesothelioma Interest Group, Chicago, Illinois, October 2006.

I21. **Armato SG III**: Computer-aided diagnosis in thoracic radiology: Lung cancer and beyond. Sir Charles Gairdner Hospital, University of Western Australia, Perth, Western Australia, Australia, November 2006.

I22. **Armato SG III**: Imaging-based tumor response assessment in malignant mesothelioma. Third Perth Mesothelioma Centre Symposium, Perth, Western Australia, Australia, November 2006.

I23. **Armato SG III**: Computer-aided diagnosis. 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 2006.

I24. **Armato SG III**: CT-based measurement of pleural mesothelioma: A multi-dimensional challenge. Perth Mesothelioma Centre, Sir Charles Gairdner Hospital, University of Western Australia, Perth, Western Australia, Australia, July 2009.

I25. **Armato SG III**: The ABCs of CAD. Department of Medical Technology and Physics and the Australasian College of Physical Scientists and Engineers in Medicine Western Australia Branch, Sir Charles Gairdner Hospital, University of Western Australia, Perth, Western Australia, Australia, July 2009.

I26. **Armato SG III**: Inter-observer variability in the identification of lung nodules on thoracic CT scans. Western Australia Cancer Education Meeting, University of Western Australia, Perth, Western Australia, Australia, July 2009.

I27. **Armato SG III**: Challenges in the measurement of pleural mesothelioma. Australian and New Zealand Society of Nuclear Medicine Branch Meeting, Sir Charles Gairdner Hospital, University of Western Australia, Perth, Western Australia, Australia, August 2009.

I28. **Armato SG III**: The physics of medical imaging: How we see what we see. University of Western Australia medical school, Perth, Western Australia, Australia, August 2009.

I29. **Armato SG III**: Computer-assisted decision systems in radiology—the hope, the hype, and the hard truth: CAD in lung imaging. 95th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 2009.

I30. **Armato SG III**: Computer-assisted decision systems in radiology—the hope, the hype, and the hard truth: CAD in lung imaging. 96th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, November 2010.

I31. **Armato SG III**: Basic research in imaging for medical students. Association of University Radiologists 59th Annual Meeting, Boston, Massachusetts, April 2011.

I32. **Armato SG III**: Tumor response in pleural mesothelioma: The limits of RECIST. Massachusetts General Hospital, Boston, Massachusetts, April 2011.

I33. **Armato SG III**: Abras: A software tool to support observer studies and clinical trials. RSNA/ACRIN Imaging Researchers Workshop, ACRIN Annual Meeting, Arlington, Virginia, September 2011.

I34. **Armato SG III**: Perception and the physics of medical imaging. Professor Isaac Abella Retirement Symposium, Department of Physics, The University of Chicago, Chicago, Illinois, October 2011.

I35. **Armato SG III**: Everything you always wanted to know about the Lung Image Database Consortium. College of Computing and Digital Media Research Colloquium, DePaul University, Chicago, Illinois, November 2011.

I36. **Armato SG III**: Computer-assisted decision systems in radiology—the hope, the hype, and the hard truth: CAD in lung imaging. 97th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, December 2011.

I37. **Armato SG III**: Mesothelioma: Tumor measurement and response assessment. Kazan, McClain, Lyons, Greenwood & Harley Law Firm (web conference), Oakland, California, March 2012.

I38. **Armato SG III**: Update on malignant pleural mesothelioma imaging. 11th International Conference of the International Mesothelioma Interest Group, Boston, Massachusetts, September 2012.

I39. **Armato SG III**, McNitt-Gray MF, Meyer CR, Reeves AP, Clarke LP: A publicly available database of thoracic CT scans for computer-aided diagnosis research: the Lung Image Database Consortium. CARS 2013 Computer Assisted Radiology and Surgery 27th International Congress and Exhibition, Heidelberg, Germany, June 2013.

I40. **Armato SG III**: CAD in the modern (research) world. CARS 2013 Computer Assisted Radiology and Surgery 27th International Congress and Exhibition, Heidelberg, Germany, June 2013.

I41. **Armato SG III**: Update on CT imaging of malignant pleural mesothelioma. Perth Mesothelioma Centre, Sir Charles Gairdner Hospital, University of Western Australia, Perth, Western Australia, Australia, October 2013.

Presentations

L1. Giger ML, **Armato SG III**, MacMahon H, Kandallu K, Doi K: Computer-aided diagnosis: Detection of gross abnormalities on chest radiographs. 78th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1992.

L2. **Armato SG III**, Giger ML, MacMahon H, Doi K: Computerized detection of abnormal asymmetry in digital chest radiographs. 35th Annual Meeting of the American Association of Physicists in Medicine, Washington, D.C., 1993.

L3. **Armato SG III**, Monnier L, Giger ML, MacMahon H, Chen C-T, Yap JT, Doi K: Automated registration of radionuclide lung scans with digitized chest radiographs. 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1993.

L4. **Armato SG III**, Giger ML, MacMahon H, Doi K: Computerized analysis of abnormal asymmetry in digital chest radiographs. 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1993.

L5. **Armato SG III**, Giger ML, MacMahon H, Chen C-T: Automated registration of ventilation/perfusion images with digital chest radiographs. 37th Annual Meeting of the American Association of Physicists in Medicine, Boston, Massachusetts, 1995.

L6. **Armato SG III**, Giger ML, MacMahon H: Automated lung segmentation in digitized lateral chest radiographs. 38th Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, Pennsylvania, 1996. (poster presentation)

L7. **Armato SG III**, Giger ML, MacMahon H, Chen C-T, Vyborny CJ: Automated registration of radionuclide lung scan images with digital chest radiographs. 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1996.

L8. **Armato SG III**, Giger ML, MacMahon H, Doi K: Automated segmentation of aerated lung regions in digital lateral chest radiographs. 83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1997.

L9. **Armato SG III**, Giger ML, Moran CJ, MacMahon H, Doi K: Automated detection of pulmonary nodules in helical computed tomography images of the thorax. SPIE Medical Imaging 1998, San Diego, California, 1998. (poster presentation)

L10. **Armato SG III**, Giger ML, Chen C-T, Vyborny CJ, Ryan J, MacMahon H: Automated registration of frontal and lateral radionuclide lung scan images with digital chest radiographs. 40th Annual Meeting of the American Association of Physicists in Medicine, San Antonio, Texas, 1998.

L11. **Armato SG III**, Giger ML, Moran CJ, Doi K, MacMahon H: Computerized detection of lung nodules in computed tomography scans. 1st International Workshop on Computer-Aided Diagnosis, Chicago, Illinois, 1998. (poster presentation)

L12. **Armato SG III**, Giger ML, MacMahon H: Automated abnormal asymmetry detection in digital posteroanterior chest radiographs. 1st International Workshop on Computer-Aided Diagnosis, Chicago, Illinois, 1998.

L13. **Armato SG III**, Giger ML, Moran CJ, Blackburn JT, Doi K, MacMahon H: Computerized detection of pulmonary nodules in CT scans. 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1998.

L14. **Armato SG III**, Giger ML, Blackburn JT, Doi K, MacMahon H: Three-dimensional approach to lung nodule detection in helical CT. SPIE Medical Imaging 1999, San Diego, California, 1999.

L15. **Armato SG III**, Giger ML, Doi K, MacMahon H: Comparison of two-dimensional and three-dimensional features for lung nodule detection in CT. 41st Annual Meeting of the American Association of Physicists in Medicine, Nashville, Tennessee, 1999.

L16. **Armato SG III**, Giger ML, MacMahon H: Automated lung nodule detection from volumetric CT image data. 85th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1999.

L17. **Armato SG III**, Maloney MM, MacMahon H: Automated lung segmentation in thoracic CT scans. 85th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1999.

L18. **Armato SG III**, Giger ML, MacMahon H: Analysis of a three-dimensional lung nodule detection method for thoracic CT scans. SPIE Medical Imaging 2000, San Diego, California, 2000.

L19. **Armato SG III**, Giger ML, MacMahon H: Automated lung nodule detection in standard and low-dose helical CT scans. World Congress on Medical Physics and Biomedical Engineering, Chicago, Illinois, 2000.

L20. **Armato SG III**, Engelmann R, Giger ML, MacMahon H, Doi K: A computer-aided diagnostic method for the detection of lung nodules in CT scans. 86th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2000.

L21. **Armato SG III**, Giger ML, Doi K, Bick U, MacMahon H: Computerized lung nodule detection: Comparison of performance for low-dose and standard-dose helical CT scans. SPIE Medical Imaging 2001, San Diego, California, 2001. (poster presentation) (awarded Honorable Mention Poster Award)

L22. **Armato SG III**, Giger ML, Doi K, MacMahon H: Assessment of false-positive detections from a computerized analysis of CT lung nodule cases. 43rd Annual Meeting of the American Association of Physicists in Medicine, Salt Lake City, Utah, 2001.

L23. **Armato SG III**, Li F, Giger ML, MacMahon H, Sone S, Doi K: Performance of automated CT lung nodule detection on missed cancers. 87th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2001.

L24. **Armato SG III**: Update on the development of an automated lung nodule detection method for CT scans. Computer Assisted Radiology and Surgery 16th International Congress and Exhibition, Paris, France, 2002.

L25. **Armato SG III**, Altman MB, Wilkie J, Sone S, Li F: Automated lung nodule classification following automated nodule detection on CT: A serial approach. 44th Annual Meeting of the American Association of Physicists in Medicine, Montreal, Quebec, 2002.

L26. McNitt-Gray MF, **Armato SG III**, Clarke LP, McLennan G, Meyer CR, Yankelevitz DF: The Lung Imaging Database Consortium: Creating a resource for the image processing research community. 88th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2002. (poster presentation)

L27. **Armato SG III**, Kindler HL, MacMahon H, Vogelzang NJ, Oxnard GR, Starkey A: Interface for the interactive, computer-assisted measurement of mesothelioma on CT scans. 6th International Conference of the International Mesothelioma Interest Group, Perth, Australia, 2002. (poster presentation by HL Kindler)

L28. **Armato SG III**: Automated lung segmentation in thoracic CT scans: Applications for computer-aided diagnosis research. Biomedical Imaging Research Opportunities Workshop, Bethesda, Maryland, 2003. (poster presentation)

L29. **Armato SG III**: Computerized lung nodule detection: Effect of image annotation schemes for conveying results to radiologists. SPIE Medical Imaging 2003, San Diego, California, 2003. (poster presentation)

L30. **Armato SG III** for the Lung Image Database Consortium: The motivation, mission, and members of the Lung Image Database Consortium (LIDC). SPIE Medical Imaging 2003, San Diego, California, 2003.

L31. **Armato SG III**, Oxnard GR, MacMahon H, Vogelzang NJ, Kindler HL, Starkey A: A computer interface for the semi-automated measurement of mesothelioma on CT scans. 39th Annual Meeting of the American Society of Clinical Oncology, Chicago, Illinois, 2003. (poster presentation)

L32. **Armato SG III**, MacMahon H: Automated lung segmentation and computer-aided diagnosis for thoracic CT scans. Computer Assisted Radiology and Surgery 17th International Congress and Exhibition, London, United Kingdom, 2003.

L33. **Armato SG III**, Oxnard GR, Vogelzang NJ, MacMahon H, Kindler HL, Starkey A: Computerized quantification of mesothelioma tumor thickness. 45th Annual Meeting of the American Association of Physicists in Medicine, San Diego, California, 2003.

L34. **Armato SG III**, Oxnard GR, Vogelzang NJ, Kindler HL, Starkey A, MacMahon H: Computer-assisted measurement of mesothelioma tumor thickness. 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2003.

L35. **Armato SG III**, Aristophanous M, Engelmann RM, Croteau CL, MacMahon H: Automated detection of pathologic change from temporal subtraction images of the chest. 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2003.

L36. McNitt-Gray MF, **Armato SG III**, McLennan G, Meyer CR, Yankelevitz DF, Croft BY: The Lung Image Database Consortium: Fundamental issues for the creation of a resource for the image processing research community. 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2003. (poster presentation)

L37. **Armato SG III** for the Lung Image Database Consortium: Advances of the Lung Image Database Consortium in the creation of a standard resource for CAD research. SPIE Medical Imaging 2004, San Diego, California, 2004.

L38. **Armato SG III**, Croteau CL, Engelmann RM, MacMahon H: Automated analysis of registration accuracy in temporally subtracted chest radiographs. 46th Annual Meeting of the American Association of Physicists in Medicine, Pittsburgh, Pennsylvania, 2004.

L39. Ogarek JL, **Armato SG III**, Starkey A, Vogelzang NJ, Kindler HL, MacMahon H: Malignant pleural mesothelioma: Inter-observer variability in the assessment of tumor response classification. 40th Annual Meeting of the American Society of Clinical Oncology, New Orleans, Louisiana, 2004. (poster presentation by JL Ogarek)

L40. **Armato SG III** for the Lung Image Database Consortium: The LIDC nodule visual library. SPIE Medical Imaging 2005, San Diego, California, 2005.

L41. Sensakovic WF, **Armato SG III**, Starkey A: Automated lung segmentation in magnetic resonance images. SPIE Medical Imaging 2005, San Diego, California, 2005. (poster presentation by WF Sensakovic)

L42. Oxnard GR, **Armato SG III**, Salgia R, Kindler HL: Development of response criteria for mesothelioma based on mathematical model. 41st Annual Meeting of the American Society of Clinical Oncology, Orlando, Florida, 2005. (poster presentation by GR Oxnard)

L43. Oxnard GR, **Armato SG III**, Kindler HL: Alternate response criteria for mesothelioma based on modeling of growth. International Association for the Study of Lung Cancer 11th World Conference on Lung Cancer, Barcelona, Spain, 2005. (poster presentation by HL Kindler) (awarded Outstanding Poster Award)

L44. **Armato SG III**, Oxnard GR, Kocherginsky M, Vogelzang NJ, Kindler HL, MacMahon H: Observer evaluation of semi-automated mesothelioma measurements. 47th Annual Meeting of the American Association of Physicists in Medicine, Seattle, Washington, 2005.

L45. Roy AS, **Armato SG III**: Study of radial gradient features in LDA classifier for automated CT lung nodule detection. 47th Annual Meeting of the American Association of Physicists in Medicine, Seattle, Washington, 2005.

L46. **Armato SG III**, Doshi DJ, Engelmann R, Caligiuri P, MacMahon H: Dual-energy subtraction chest radiography combined with temporal subtraction for enhanced diagnostic quality. 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2005.

L47. **Armato SG III**, Doshi DJ, Engelmann R, Croteau CL, MacMahon H: Automated registration accuracy assessment for temporal subtraction images of the chest. 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2005.

L48. **Armato SG III**, McNitt-Gray MF, Reeves AP, Meyer CR, McLennan G, Clarke LP: The Lung Image Database Consortium (LIDC): An evaluation of radiologist variability in the identification of lung nodules in CT scans. 91st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2005.

L49. Engelmann R, **Armato SG III**, Doshi DJ, Sensakovic WF, Starkey A, MacMahon H: Temporal subtraction of lateral chest radiographs. 48th Annual Meeting of the American Association of Physicists in Medicine, Orlando, Florida, 2006. (poster presentation by R Engelmann)

L50. **Armato SG III**, Roberts RY, Aberle DR, Kazerooni EA, van Beek EJR, Yankelevitz DF: The Lung Image Database Consortium (LIDC): Radiologist agreement in the identification of lung nodules in CT scans. 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2006.

L51. Bonta I, **Armato SG III**, Menon N, Griffin J, MacMahon H: Imaging research in the era of informed consent: Three years experience at the University of Chicago. 92nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2006. (poster presentation by I Bonta)

L52. **Armato SG III**, Roberts RY, McLennan G, McNitt-Gray MF, Yankelevitz D, Kazerooni EA, van Beek EJR, MacMahon H, Aberle DR, Meyer CR, Reeves AP, Henschke CI, Hoffman EA, Croft BY, Clarke LP: The Lung Image Database Consortium (LIDC): A quality assurance model for the collection of expert-defined "truth" in lung-nodule-based image analysis studies. SPIE Medical Imaging 2007, San Diego, California, 2007. (poster presentation)

L53. Sensakovic WF, **Armato SG III**, Starkey A: Extrapolation techniques for textural characterization of tissue in medical images. SPIE Medical Imaging 2007, San Diego, California, 2007. (poster presentation by WF Sensakovic)

L54. **Armato SG III**, Pearson EA, Roberts RY, Sensakovic WF, Caligiuri P: Assessment of mesothelioma tumor response: Correlation of tumor thickness and tumor area. 49th Annual Meeting of the American Association of Physicists in Medicine, Minneapolis, Minnesota, 2007.

L55. Sensakovic WF, **Armato SG III**, Starkey A: An external energy field for hemithoracic-cavity segmentation using deformable contours. 49th Annual Meeting of the American Association of Physicists in Medicine, Minneapolis, Minnesota, 2007. (poster presentation by WF Sensakovic)

L56. Roberts RY, **Armato SG III**, Starkey A, Sensakovic WF, Maitland M: Evolution of adrenal gland perfusion with anti-angiogenic therapy: A CT-based study. 49th Annual Meeting of the American Association of Physicists in Medicine, Minneapolis, Minnesota, 2007. (poster presentation by RY Roberts)

L57. **Armato SG III**, MacMahon H, Aberle DR, Kazerooni EA, van Beek EJR, Yankelevitz DF, *et al*.: "Truth" and radiologist performance in the detection of lung nodules. 93rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2007.

L58. Sensakovic WF, **Armato SG III**, Starkey A, Roberts RY: Inconsistencies in discrete space and continuous space lesion boundary and area definitions. 50th Annual Meeting of the American Association of Physicists in Medicine, Houston, Texas, 2008. (poster presentation)

L59. Roberts RY, **Armato SG III**, Starkey A, Sensakovic WF: Evolution of adrenal gland perfusion with anti-angiogenic therapy: A CT-based study. 50th Annual Meeting of the American Association of Physicists in Medicine, Houston, Texas, 2008. (poster presentation by RY Roberts)

L60. **Armato SG III**, Osborne M, Hwang DH, Roberts RY, Sensakovic WF, Starkey A, MacMahon H, Kindler HL: Thickness and area in the CT-based assessment of mesothelioma tumor response. 9th International Conference of the International Mesothelioma Interest Group, Amsterdam, The Netherlands, 2008.

L61. **Armato SG III**, Bidaut L, Zhao B, Salganicoff M, Shreter U, Clarke LP, *et al.*: The Lung Image Database Consortium (LIDC) and Image Database Resource Initiate (IDRI): A reference database for thoracic CT image analysis research. 94th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2008.

L62. **Armato SG III**, Batra P, Caligiuri P, Jude CM, Quint LE, Sundaram B, *et al.*: The Lung Image Database Consortium (LIDC): Lessons learned from the development of a consensus-based public resource. 94th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2008.

L63. Labby Z, **Armato SG III**, Sensakovic WF, Starkey A, Roberts RY, Straus C, Caligiuri P: Inter-observer variability of mesothelioma area measurements on CT scans. 51st Annual Meeting of the American Association of Physicists in Medicine, Anaheim, California, 2009. (poster presentation by Z Labby)

L64. Sensakovic WF, Starkey A, Roberts RY, Straus C, Caligiuri P, **Armato SG III**: The influence of initial outlines on observers. 51st Annual Meeting of the American Association of Physicists in Medicine, Anaheim, California, 2009. (presentation by WF Sensakovic)

L65. Sensakovic WF, Pinto JM, Baroody FM, Starkey A, **Armato SG III**: Automated segmentation of mucosal change in rhinosinusitis patients. SPIE Medical Imaging 2010, San Diego, California, 2010. (poster presentation)

L66. **Armato SG III**, McLennan G, McNitt-Gray MF, Meyer CR, Reeves AP, Bidaut L, Zhao B, Croft BY, Clarke LP: The Lung Image Database Consortium (LIDC) and Image Database Resource Initiative (IDRI): A completed public database of CT scans for lung nodule analysis. 52nd Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, Pennsylvania, 2010.

L67. Corson N, Sensakovic WF, Straus C, Starkey A, **Armato SG III**: Characterization of mesothelioma and tissues present in contrast-enhanced chest CT scans. 52nd Annual Meeting of the American Association of Physicists in Medicine, Philadelphia, Pennsylvania, 2010. (presentation by N Corson)

L68. Sensakovic WF, **Armato SG III**, Starkey A, Kindler HL, Vigneswaran WT: Lung volume improvement in malignant pleural mesothelioma patients undergoing pleurectomy/decortication. 10th International Conference of the International Mesothelioma Interest Group, Kyoto, Japan, 2010. (presentation by WF Sensakovic)

L69. Sensakovic WF, **Armato SG III**, Straus C, Roberts RY, Caligiuri P, Starkey A, Kindler HL: Computerized segmentation and measurement of malignant pleural mesothelioma. 10th International Conference of the International Mesothelioma Interest Group, Kyoto, Japan, 2010. (presentation by WF Sensakovic)

L70. Sensakovic WF, Starkey A, **Armato SG III**: Abras: A portable application for observer studies and visualization. CARS 2011 Computer Assisted Radiology and Surgery 25th International Congress and Exhibition, Berlin, Germany, 2011. (presentation by WF Sensakovic)

L71. Sensakovic WF, Labby Z, Straus C, **Armato SG III**: Deformable registration is a necessary preprocessing step for perfusion CT imaging of malignant pleural mesothelioma. CARS 2011 Computer Assisted Radiology and Surgery 25th International Congress and Exhibition, Berlin, Germany, 2011. (presentation by WF Sensakovic)

L72. Sensakovic WF, Labby Z, **Armato SG III**, Kindler H, Straus C: Perfusion CT scanning of MPM: Initial experience. CARS 2011 Computer Assisted Radiology and Surgery 25th International Congress and Exhibition, Berlin, Germany, 2011. (poster presentation by WF Sensakovic)

L73. Zinoveva O, Zinovev D, Siena SA, Raicu DS, Furst JD, **Armato SG III**: A texture-based probabilistic approach for lung nodule segmentation, 8th International Conference on Image Analysis and Recognition, Burnaby, BC, Canada, 2011. (presentation by O Zinoveva)

L74. **Armato SG III**, Gruszauskas N, MacMahon H, Torno M, Li F, Engelmann R, Starkey A, Pudela C, Marino J, Chang P, Giger M: The Human Imaging Research Office (HIRO): Advancing the role of imaging in clinical trials. 53rd Annual Meeting of the American Association of Physicists in Medicine, Vancouver, British Columbia, Canada, 2011. (poster presentation)

L75. **Armato SG III**, Lee M, Yu G, MacMahon H: Texture-based identification of pathologic change on temporally subtracted radiographic chest images. 53rd Annual Meeting of the American Association of Physicists in Medicine, Vancouver, British Columbia, Canada, 2011. (presentation by M Lee)

L76. Cunliffe A, Al-Hallaq H, Labby Z, Pelizzari C, Sensakovic W, **Armato SG III**: Evaluation of CT texture feature changes following deformable lung registration. 53rd Annual Meeting of the American Association of Physicists in Medicine, Vancouver, British Columbia, Canada, 2011. (poster presentation by A Cunliffe)

L77. Labby Z, Sensakovic W, Straus C, Shouldis J, Kindler H, **Armato SG III**: Perfusion CT and tumor response for patients with mesothelioma. 53rd Annual Meeting of the American Association of Physicists in Medicine, Vancouver, British Columbia, Canada, 2011. (poster presentation by Z Labby)

L78. Labby Z, Sensakovic W, Nowak A, Kindler H, **Armato SG III**: Prognostic value of automatically segmented lung volumes during chemotherapy for patients with mesothelioma. 53rd Annual Meeting of the American Association of Physicists in Medicine, Vancouver, British Columbia, Canada, 2011. (poster presentation by Z Labby)

L79. Li F, Sensakovic WF, Labby Z, Kindler HL, MacMahon H, **Armato SG III**: Normalized tumor enhancement for malignant pleural mesothelioma in clinical trials. 97th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2011. (presentation by F Li)

L80. Li F, Starkey A, Kindler HL, MacMahon H, Salgia R, **Armato SG III**: Impact of protocol-specific and clinical measurements on response classification for malignant pleural mesothelioma in clinical trials. 97th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2011. (poster presentation by F Li)

L81. Li F, Engelmann R, Starkey A, **Armato SG III**, MacMahon H: Use of bone suppression in computer-aided nodule detection for chest radiographs: Analysis of a new scheme with high sensitivity and greatly improved specificity. 97th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2011. (presentation by H MacMahon)

L82. Knoll B, Cunliffe A, Al-Hallaq H, Malik R, **Armato SG III**: Investigating the dose dependence of median pixel value in CT lung images of patients undergoing stereotactic body radiation therapy. SPIE Medical Imaging 2012, San Diego, California, 2012. (poster presentation by B Knoll)

L83. **Armato SG III**, Hendee W, Marshall C, Curran B: The evolving landscape of scientific publishing. 54th Annual Meeting of the American Association of Physicists in Medicine, Charlotte, North Carolina, 2012.

L84. Ludwig M, Cunliffe A, Al-Hallaq H, **Armato SG III**: Evaluation of image registration using landmark matching and texture analysis. 54th Annual Meeting of the American Association of Physicists in Medicine, Charlotte, North Carolina, 2012. (presentation by M Ludwig)

L85. Ozturk N, **Armato SG III**, Giger ML, Serago C, Ross LF: Ethics and professionalism education in medical physics: A needs assessment study. 54th Annual Meeting of the American Association of Physicists in Medicine, Charlotte, North Carolina, 2012. (poster presentation by N Ozturk)

L86. **Armato SG III**, Nowak AK, Francis RJ: Observer variability in mesothelioma tumor thickness measurements. 11th International Conference of the International Mesothelioma Interest Group, Boston, Massachusetts, September 2012. (poster presentation)

L87. Labby ZE, Nowak AK, Kindler HL, **Armato SG III**: Lung and disease volume measurements as markers for patient response in malignant pleural mesothelioma. 11th International Conference of the International Mesothelioma Interest Group, Boston, Massachusetts, September 2012. (poster presentation)

L88. Labby ZE, Sensakovic WF, Kindler HL, Shouldis J, Straus C, **Armato SG III**: Dynamic CT and tumor response for patients with mesothelioma. 11th International Conference of the International Mesothelioma Interest Group, Boston, Massachusetts, September 2012.

L89. Li F, Engelmann R, **Armato SG III**, MacMahon H: Analysis of nodule detection CAD performance in a large unselected series of chest radiographs. 98th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2012. (poster presentation by F Li)

L90. Sensakovic WF, Garneau J, Baroody F, Pinto J, **Armato SG III**: Objective assessment of rhinosinusitis using volumetric computer analysis: Preliminary results. 98th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2012. (poster presentation by WF Sensakovic)

L91. Cunliffe AR, Al-Hallaq HA, Fei XM, Tuohy RE, **Armato SG III**: Comparison of demons deformable registration-based methods for texture analysis of serial thoracic CT scans. SPIE Medical Imaging 2013, Lake Buena Vista, Florida, 2013. (presentation by RA Cunliffe)

L92. Engelmann R, Teng L, Appelbaum D, Pu Y, O'Brien-Penney BC, Chen C-T, **Armato SG III**, Volchenboum SL: Automated scoring of MIBG scans for neuroblastoma patients. 2013 Joint Summits on Translational Science, American Medical Informatics Association, San Francisco, California, 2013. (poster presentation by SL Volchenboum)

L93. Khanwalkar AR, **Armato SG III**, Nowak AK, Labby ZE, Kocherginsky M, Straus C: Natural history tumor growth as a contributory factor in assessing response to chemotherapy in malignant pleural mesothelioma. Association of University Radiologists 61st Annual Meeting, Los Angeles, California, 2013. (presentation by AR Khanwalkar)

L94. Cunliffe A, **Armato SG III**, Fei X, Tuohy R, Al-Hallaq H: Investigation of demons deformable registration-based methods to measure lung CT texture change over time. 55th Annual Meeting of the American Association of Physicists in Medicine, Indianapolis, Indiana, 2013. (presentation by A Cunliffe)

L95. Sensakovic WF, **Armato SG III**, Pinto J, Baroody F, Starkey A: Computerized measurement of mucosal inflammation change. 20th International Conference on Medical Physics, Brighton, United Kingdom, 2013. (presentation by WF Sensakovic)

L96. Armato SG III, Belcher AH, Labby ZE, Nowak AK, Kindler HL: Volumetric response classification criteria in mesothelioma. International Association for the Study of Lung Cancer (IASLC) 15th World Conference on Lung Cancer, Sydney, Australia, 2013.

L97. Cunliffe AR, Armato SG III, Straus C, Malik R, Al-Hallaq HA: A texture analysis approach to assess the severity of acute normal tissue changes in thoracic CT scans following radiation therapy for lung cancer. International Association for the Study of Lung Cancer (IASLC) 15th World Conference on Lung Cancer, Sydney, Australia, 2013. (poster presentation by AR Cunliffe)

L98. Nowak AK, Francis RJ, Kocherginsky M, Armato SG III: Evaluation of mesothelioma tumor thickness measurement variability. International Association for the Study of Lung Cancer (IASLC) 15th World Conference on Lung Cancer, Sydney, Australia, 2013. (poster presentation by AK Nowak)

L99. Torno MD, Gruszauskas NP, Engelmann RM, Starkey A, Chang PJ, **Armato SG III**: An anonymized radiological database with open-source search engine and image request system for biomedical researchers. 99th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2013. (presentation by MD Torno)

Scientific Exhibits

S1. Doi K, Giger ML, MacMahon H, Nishikawa RM, Schmidt RA, Hoffmann KR, ... , **Armato SG III**, *et al.*: Computer-aided diagnosis: Potential usefulness of real-time computer outputs to interpretations of radiologists. 78th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1992.

S2. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, MacMahon H, Schmidt RA, ... , **Armato SG III**, *et al.*: Computer-aided diagnosis in mammography, chest radiography, angiography, and bone radiography. 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1993. (awarded Magna Cum Laude)

S3. MacMahon H, Giger ML, Sullivan B, Ansari R, Dixon LB, Dachman AH, ... , **Armato SG III**: Effect of lossy compression and spatial resolution on the quality of general radiographic images. 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1994. (awarded Certificate of Merit)

S4. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, MacMahon H, Schmidt RA, ... , **Armato SG III**, *et al.*: Radiology workstation with advanced techniques for computer-aided diagnosis. 80th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1994.

S5. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, Schmidt RA, MacMahon H, ... , **Armato SG III**, *et al.*: Prototype clinical "intelligent" workstation for computer-aided diagnosis. 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1995.

S6. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, ... , **Armato SG III**, *et al.*: Computer-aided radiographic interpretation on intelligent workstations. 82nd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1996.

S7. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, Schmidt RA, MacMahon H, ... , **Armato SG III**, *et al.*: Computer-aided diagnostic schemes in mammography, chest radiography, angiography, and computed tomography. 83rd Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1997.

S8. **Armato SG III**, Giger ML, Moran CJ, Blackburn JT, Doi K, MacMahon H: Computerized detection of pulmonary nodules in CT scans. 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1998. (awarded Excellence in Design)

S9. Doi K, Giger ML, Nishikawa RM, Hoffmann KR, MacMahon H, Schmidt RA, ... , **Armato SG III**, *et al.*: Computer-aided diagnosis: From lab to practice. 84th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1998.

S10. **Armato SG III**, Giger ML, Blackburn JT, Doi K, MacMahon H: Three-dimensional detection of lung nodules in helical CT scans. Chicago Thoracic Society Annual Scientific Abstract Session, Chicago, Illinois, 1999.

S11. MacMahon H, Engelmann RM, **Armato SG III**, Katsuragawa S, Li Q, Doi K, *et al.*: Computer-aided diagnosis (CAD) for chest radiology: Interactive demonstration with real-time ROC analysis. 85th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 1999. (awarded Magna Cum Laude)

S12. **Armato SG III**, Engelmann R, Giger ML, MacMahon H, Doi K: A computer-aided diagnostic method for the detection of lung nodules in CT scans: An animated demonstration. 86th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2000.

S13. **Armato SG III**, Li F, Giger ML, Sone S, Doi K, MacMahon H, Engelmann R: Interactive interpretation of CT scans with the benefit of automated lung nodule detection results. 87th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2001.

S14. **Armato SG III**, Suzuki K, Li F, Giger ML, Doi K, MacMahon H: CAD of pulmonary nodules in thoracic CT. 88th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, Illinois, 2002.

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