Update: 12/12/08

CURRICULUM VITAE

Name: Bruce D. Smith
Rank: Associate Professor

I. GENERAL INFORMATION

A. Personal Data:

B. Education:

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Michigan, Ann Arbor	B.S.E.	1972	Electrical Engineering
University of Michigan, Ann Arbor	M.S.	1976	Bioengineering
University of Michigan, Ann Arbor	M.S.E.	1980	Comput. Infor. Control
University of Rhode Island, Kingston	Ph.D.	1987	Electrical Engineering

C. Academic Appointments (chronological with latest first):

2001-Present Associate Professor, Electrical Engineering, University of Texas San Antonio.
1987-1992 Assistance Professor, Electrical Engineering, University of Cincinnati.

D. Other Employment:

E. Consulting:

F. Certification and Licensure:

G. Honors and Awards:

Journal Paper recognized by IEEE-TMI for it's "exceptional originality and enduring impact.

2004 Invited Speaker, Los Alamos National Laboratory.
2001 Journal Paper Award, IEEE Transaction Medical Imaging.
1993 Invited Lecturer, First International Conference on Inverse Problems in Engineering.
1990 Invited Author, Journal of Optical Engineering.

II. TEACHING

A. Classroom/Laboratory:

Date	Course	Level
Fall 2008	Random Signal and Noise	G
Fall 2008	Digital Signal Processing	U
Fall 2008	Network Theory	U

Level: Undergraduate (U), Graduate (G)

B. Instructional Development:

1. Courses Developed (Course number, title, date)

2. Media and Software Developed

C. Masters' Theses and Ph.D. Dissertations Directed

1. Masters

- Tarkeshwar Singh
- Charles C. Peck
- Chucri A. Kardous
- Karl Joerling
- David L. Hecht

2. Ph.D. Dissertation

D. Membership on Graduate Committees

1. Masters

- Julian Anugom
- Shih-Chia Liu

2. Ph.D. Dissertation

- Fatma Arsian

E. Postdoctoral Fellows Supervised

- Jay X. Fan

F. Undergraduate Students (Research) Supervised

III. RESEARCH

A. Bibliography:

1. Books/Book Chapters

1a. <u>Books</u>

1b. <u>Book Chapters</u>

1.

2. Journal Papers (refereed full length)

2a. <u>Published or In Press</u>

- **B. D. Smith**, "Reconstruction methods and completeness conditions for two Compton data models," Journal of the Optical Society of American A, vol. 22, issue 3, pp 445-59, March 2005.
- **B. D. Smith** and C. C. Peck, "Implementation and comparison and investigation of heuristic techniques for cone-beam tomography," IEEE Transactions on Medical Imaging, vol. MI 15, pp. 519-531, August 1996
- **B. D. Smith**, "Comments on 'A note on Smith's reconstruction algorithm for cone beam tomography'," IEEE Transactions on Medical Imaging, vol. 12, pp. 627-628, September 1993.
- **B. D. Smith** and T. Singh, "Fan beam reconstruction from a straight line of source points," IEEE Transactions on Medical Imaging, vol. MI 12, pp. 10-18, March 1993.
- **B. D. Smith** and J. Chen, "Implementation, analysis and improvement of a novel cone-beam reconstruction method," IEEE Transactions on Medical Imaging, vol. 11, pp. 260-266, June 1992.
- **B. D. Smith**, "Cone beam tomography: Recent advances and a tutorial," Optical Engineering, vol. 29, pp. 524-534, May 1990.

- **B. D. Smith**, “Derivation of extended fan-beam formula,” IEEE Transactions on Medical Imaging, vol. MI-4, pp. 177-184, December 1985.
- **B. D. Smith**, “Image reconstruction from cone-beam projections: necessary and sufficient conditions and reconstruction methods,” IEEE Transactions on Medical Imaging, vol. MI-4, pp. 14-28, March 1985.
- **B. D. Smith**, “Cone beam convolution formula,” Computers in Biology and Medicine, vol. 13, pp. 81-87, February 1983.

2b. <u>Submitted/Under Preparation</u>.
Journal paper: “*Reconstruction of Integrals Along lines From Compton Camera Data.”*

3. Conference Papers

3a. <u>Published or Accepted</u>

- **B.D. Smith**, “Reconstruction of integrals along lines from Compton camera data,” AMS Annual Meeting, Anaheim, California, June, 2007.
- **B.D. Smith**, ``Cone—Beam Tomography: an Introduction and Its Engineering Challenges,'' First International Conference on Inverse Problems in Engineering: Theory and Practice, Palm Coast, Florida, June, 1993.
- S.H. Manglos and **B.D. Smith**, ``Practical Evaluation of Several Cone Beam Orbits for SPECT,'' IEEE 1992 Nuclear Science Symposium, Medical Imaging Conference 92, Orlando, Florida, October, 1992.
- **B.D. Smith** and C.C. Peck, ``Implementation and comparison of a novel computationally efficient cone--beam reconstruction method,'' SPIE Biomedical Image Processing and Three--Dimensional Microscopy, San Jose, February 1992. (Presentation only).
- **B.D. Smith**, ``Straight line cone--beam tomography for SPECT cardiac imaging – a feasibility study'' Society of Nuclear Medicine 38th Annual Meeting, Cincinnati, June 1991.
- **B.D. Smith**, ``Cone--beam tomography for medical imaging and NDE,'' SPIE Biomedical Image Processing II, San Jose, vol. 1450, pp. 13--17, February 1991.
- **B.D. Smith**, ``Advances in cone--beam tomography for the analysis of materials, ''Materials Research Society Fall Meeting, Boston, December 1990.
- **B.D. Smith**, ``Novel cone--beam reconstruction methods,'' 1990 Nuclear Science Symposium, Medical Imaging Conference 90, Crystal City Virginia, vol. 2, pp. 1523-1525, October, 1990.
- **B.D. Smith**, ``Advances in cone--beam tomography for SPECT,'' European Journal of Nuclear Medicine, (Supplement); Montreal, vol. 16, pp. S107, August 1990.
- **B.D. Smith**, ``Advances in cone--beam tomography for NDE,'' Proceedings of the Am-Cers/ASNT Conference on Nondestructive Evaluation of Modern Ceramic, Columbus Ohio, pp. 118--119, July 1990.
- **B.D. Smith,** ``Foundations of cone--beam tomography,'' Proceeding of the International Symposium on Circuits and Systems, New Orleans, vol. 3, pp. 2037--2040, May 1990.
- **B.D. Smith**, ``Reconstruction methods for cone-beam imaging,'' Eleventh Northeast IEEE Bioengineering Conference Proceedings, Worcester, March 1985.

3b. <u>Submitted/Under Preparation</u>

4. *Book Reviews*

5. *Other Articles*

B. Lectures, Seminars

(Chronologically, NOT INCLUDING presentations given at conferences as shown in 3a)

1. ***Scientific Lectures, Seminars***

- Invited speaker: Can Lampshade Compton Camera Meet the Challenges Facing SPECT?” Radiology Department, UTHSCSA, September, 2008.
- Invited speaker: “Tomographic Collimation: A proposed technique for using Compton cameras in homeland security,” Texas A&M University at College Station, November 2, 2007.
- Invited Speaker North Carolina State University: Tomographic Collimation: A Proposed Technique for Detecting Nuclear Contraband, November 6, 2006.

2. *Other Lectures, Seminars, Briefings, Short courses*

C. Areas of Research Interest

Tomographic imaging

D. Research Support

1. National/International

Agency: NIH
Title: Evaluation of novel cone-beam reconstruction for SPECT
Peer Reviewed (Y/N): Y
Date (start-end): 1992
Total amount: $291,000.
Role (Principal Investigator/Co-investigator): PI

Agency: NSF
Title: Image reconstruction from cone--beam projections
Peer Reviewed (Y/N): Y
Date (start-end): 1992
Total amount: $143,151.
Role (Principal Investigator/Co-investigator): PI

2. State

Agency:
Title:
Peer Reviewed (Y/N):
Date (start-end):
Total amount:
Role (Principal Investigator/Co-investigator):

(Repeat for each grant)

3. Companies

Agency: General Electric
Title: XR simultaneous imaging
Peer Reviewed (Y/N): N
Date (start-end): April 1989 – September 1990
Total amount: $15,000
Role (Principal Investigator/Co-investigator): PI

4. Other including sub-contracts, internal UTSA funding through earmarks, institutional grants etc.

Agency:
Title:
Peer Reviewed (Y/N):
Date (start-end):
Total amount:
Role (Principal Investigator/Co-investigator):

(Repeat for each grant)

5. Pending with funding agency

(Repeat for each grant)

6. ***Proposals Rejected***

Agency: NSF
Title: ARI-MA Developing Compton Cameras with Regional-Sensitivity for Detection of Radioactive Materials
Peer Reviewed (Y/N): Y
Date (start-end): January 2009 – January 2014
Total amount: $ 1,486,170
Role (Principal Investigator/Co-investigator): PI

Agency: NSF
Title: Developing the Nuclear Inspection Capabilities of Compton Cameras
Peer Reviewed (Y/N): Y
Date (start-end): August 2007 – August 2010
Total amount: $298,128.00
Role (Principal Investigator/Co-investigator): PI

Agency: NSF
Title: Developing the Nuclear Inspection Capabilities of Compton Cameras
Peer Reviewed (Y/N): Y
Date (start-end): June 2007 – June 2010
Total amount: $375,424.
Role (Principal Investigator/Co-investigator): PI

Agency: NSF
Title: Demonstrating the Potential of Recent Advances in Compton Cameras
Peer Reviewed (Y/N): Y
Date (start-end): January 2007- January 2010
Total amount: $299,321.
Role (Principal Investigator/Co-investigator): PI

Agency: DHS
Title: Detection and Identification of Nuclear Contraband Using Tomographic Collimation.
Peer Reviewed (Y/N): Y
Date (start-end): August 2006 – August 2010.
Total amount: $1,085,691.
Role (Principal Investigator/Co-investigator): PI

Agency: NIH
Title: Novel Design and Reconstruction Algorithms for a New Nuclear Medicine Imaging Device.
Peer Reviewed (Y/N): Y
Date (start-end): August 2006 – August 2008.
Total amount: $226,986.
Role (Principal Investigator/Co-investigator): PI

Agency: San Antonio Area Foundation.
Title: Computer Simulations to Demonstrate the Potential of a New Medical Imaging Device.
Peer Reviewed (Y/N): Y
Date (start-end): August 2005 – August 2006.
Total amount: $27,000.
Role (Principal Investigator/Co-investigator): PI

Agency: NIH
Title: Compton Reconstruction for Medicine
Peer Reviewed (Y/N): Y

Date (start-end): September 2003 – September 2005
Total amount: $421,950.
Role (Principal Investigator/Co-investigator): PI

Agency: NIH
Title: Reconstruction from Compton data for Medical Imaging
Peer Reviewed (Y/N): Y
Date (start-end): April 2003 – April 2006
Total amount: $409,406.
Role (Principal Investigator/Co-investigator): PI

IV. SERVICE

A. Professional Activities:

1. Current Professional and Scientific Organizations/Societies If election/nomination required then mark with *

Years (from-to)	Name of Organization
1983-Present	IEEE; Bioengineering Society and Nuclear Science Society
2005-Present	Society of Nuclear Medicine
2007-Present	American Nuclear Society

2. Past and Current Positions and/or Offices Held in Professional Organizations

1987—1989	Member Executive Committee IEEE Cincinnati Section
2003—2006	Member Executive Committee ASNT South Texas Section
2008—Present	Section Co-Organizer American Nuclear Society

3. Other Professional Activities *(e.g., National and State Consultantships, Review Panels and Committees, Editorial Boards, Continuing Education Lectures Presented, etc.)*

Editor/Editorial Board Member

- Chair: University Programs Research Council, ASNT, 2006.

International Conference/Meeting/Symposium Organizer/Chairmanship

Meeting (full name)
Year
Role

Session Chair/Organizer

Year, Meeting, Session Name

(Repeat for each session)

Reviewer for Journals

Referee: IEEE Transaction Medical Imaging, 1988, 1989, 1990, 1991.
Referee: Computers Mathematic and Applications, 1991.
Referee: IEEE Image Processing, 1992.

Review Panels (for grants)

Year, Agency, Panel Name
1990, National Science Foundation, Signal Processing

(Repeat as necessary)

Continuing Education Seminars Given

Date, Seminar name

4. Community Service

Date, Service, Agency

B. Committees:
1. Department *(specify if Chair)*

2006—2007, Department Faculty Review Advisory Committee (DFRAC), Met about three times per year.
2006—2007, Department TA selection committee Year, Committee, Met twice per year.
2006—2007, Department PhD student selection committee, Met twice per year.

2. College of Engineering *(specify if Chair)*

2007, College Academic Policy and Curriculum Committee, Three times.
2007, College Standard Committee Recommendation, Six times.

Year, Committee, Meeting frequency
(Repeat as necessary)

3. University *(specify if Chair)*
2002—2003, Member of Faculty Grievance Committee, Met as needed.
2006, Graduate student retention committee, Met once.

4. Other

Year, Committee, Meeting frequency
(Repeat as necessary)

C. Administrative Responsibilities:
1. Department

Year, Title
(Repeat as necessary)

2. College

Year, Title
(Repeat as necessary)

3. University

Year, Title
(Repeat as necessary)

4. Staff Currently Supervised (not including students):

V. OTHER INFORMATION

A. Patents Pending/Issued:

"Method and system for improved image reconstruction and data collection for Compton cameras," United States Patent 7,262,417, August 28, 2007.

"Compton Camera Configuration and Imaging Method," Application Number 11685573, March 13, 2007; Pending.

B. Media Coverage

C. Other