



## ***Harry L. Smith, PhD, MD***

### Curriculum Vitae

#### **Education**

|         |   |           |
|---------|---|-----------|
| MD      | University of Texas<br>Health Science Center at San Antonio<br>San Antonio, Texas | 1974-1978 |
| PhD     | Nuclear Engineering<br>Texas A&M University<br>College Station, Texas             | 1966-1970 |
| BS, MS  | Civil Engineering<br>Michigan State University<br>East Lansing, Michigan          | 1963-1966 |
| None    | University of Illinois<br>Urbana, Illinois  | 1958-1961 |
| Diploma | Stephen Decatur High School<br>Decatur, Illinois                                  | 1956-1958 |
| None    | Groen Van Prinsterer Lyceum<br>Vlaardingen, The Netherlands                       | 1953-1956 |

#### **Post Graduate Medical Training**

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|----------------------------|--|-----------|
| Radiology<br>Resident      | Medical Center Hospital<br>& UT Health Science Center<br>San Antonio, Texas        | 1978-1980 |
| Nuclear<br>Med<br>Resident | Audie Murphy VA Medical Center<br>& UT Health Science Center<br>San Antonio, Texas | 1980-1982 |
| Radiology<br>Resident      | Medical Center Hospital<br>& UT Health Science Center<br>San Antonio, TX           | 1982-1983 |

## **Military Status**

Lieutenant Colonel, United States Army Reserve (Retired)

## **Professional Experience**

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|---|-----------------|
| Consultant<br>Medical and Engineering Research Consultants<br>San Antonio, Texas                      | 7/1/15 -Present |
| Senior Principal Consultant<br>Biodynamic Research Corporation<br>San Antonio, Texas                  | 1986-6/30/15    |
| Consulting Radiologist<br>Specialty Surgery Center<br>San Antonio, Texas                              | 2011-Present    |
| Consulting Radiologist<br>The Center for Special Surgery<br>San Antonio, Texas                        | 2012-2014       |
| Staff Physician<br>Audie Murphy VA Medical Center<br>San Antonio, Texas                               | 1990-2010       |
| Owner<br>Colonnade Radiology Consultants<br>San Antonio, Texas  | 1994-2011       |
| Consulting Radiologist<br>Alamo Mobile X-Ray & EKG<br>San Antonio, Texas                              | 1994-2011       |
| Radiologist and Nuc Med Physician<br>Village Dr. X-Ray & Nuclear Scan Lab, Inc.<br>San Antonio, Texas | 1983-1994       |
| Public Health Officer<br>321st Civil Affairs Bde.<br>San Antonio, Texas                               | 1985-1995       |

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|---|-------------|
| Attending Physician<br>Colonial Hills Hospital<br>San Antonio, Texas  | 1984-1990   |
| Attending Physician<br>Afton Oaks Hospital<br>San Antonio, Texas  | 1988-1994   |
| Consulting Radiologist<br>Computerized Diagnostic Lab<br>San Antonio, Texas   | 1984-1990   |
| Consulting Radiologist<br>Chase-Medstat Mobile X-Ray Service<br>San Antonio, Texas  | 1983-1993   |
| Emergency Room Physician<br>Harry L. Smith, M.D. and Associates<br>San Antonio, Texas   | 1978-1987   |
| Command Surgeon & Flight Surgeon<br>90th US Army Reserve Command<br>San Antonio, Texas  | 1978-1985   |
| Nuc Med Science Officer (MOS 3308)<br>U.S. Army Environmental Hygiene Agency,<br>APG, Maryland                                | 1972-1974   |
| Ops Research/Sys Analyst (MOS 2167)<br>U.S. Army Safeguard Systems Evaluation Agency<br>White Sands Missile Range, New Mexico | 01/72-08/72 |
| Area Intelligence Officer (MOS 9668)<br>Headquarters, Military Asst Command<br>Saigon, Vietnam                                | 01/71-12/71 |
| Nuc Weapons Effects Officer (MOS 7330)<br>U.S. Army Missile Test & Evaluation Directorate<br>WSMR, New Mexico                 | 01/70-12/70 |
| Engineering Research Associate<br>Texas Transportation Inst.<br>Bryan, Texas  | 1968-1970   |

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|---|-------------|
| Health Physicist<br>U.S. Atomic Energy Commission<br>Idaho Falls, Idaho             | 06/67-09/67 |
| Civil Engineer & Plant Engineer<br>AE Staley Manufacturing Co.<br>Decatur, Illinois | 08/63-09/66 |
| Engineering Draftsman<br>Allied Paper Corporation<br>Kalamazoo, Michigan            | 1961-1962   |

### Professional Registrations

|   |                        |
|---|------------------------|
| Diplomate, American Board of Radiology  | June 1985              |
| Diplomate, American Board of Nuclear Medicine   | September 11, 1982     |
| Texas State Board of Medical Examiners  | August 27, 1978, F2017 |
| Florida Medical Doctor Expert Witness Certification<br>Certificate Number 214, Expires 11/17/2013 | 2011                   |

### Professional Affiliations

American Medical Association  
 Texas State Medical Association  
 Bexar County Medical Society  
 Radiological Society of North America  
 Texas Radiology Society  
 American College of Radiology\*  
 Society of Nuclear Medicine  
 American College of Nuclear Physicians\*  
 American Nuclear Society\*  
 Health Physics Society  
 Southwest Chapter, HPS  
 American College of Emergency Physicians\*  
 Association for the Advancement of Automotive Medicine, Fellow  
 Society of Automotive Engineers  
 San Antonio Ultrasound Society, Past President  
 The Academy of Neuromuscular Thermography  
 Society of Medical Consultants to the Armed Forces  
 Society of United States Army Flight Surgeons  
 Wilderness Medicine Society

## Committees

|   |           |
|---|-----------|
| Member, Nuclear Medicine Science Syllabus Subcommittee,<br>Society of Nuclear Medicine                            | 1982-1984 |
| Member, Board of Trustees, Atlantic University  | 1995-1998 |
| Member, Scientific Program Committee, Association<br>for the Advancement of Automotive Medicine                   | 1996-1999 |
| Member, Board of Directors, Association for the<br>Advancement of Automotive Medicine                             | 1997-2003 |
| Member, Board of Trustees, Atlantic University Foundation   | 1997-1998 |
| Member, Board of Directors, Frio Cielo Ranch Association  | 1997-1999 |
| Member, Board of Trustees, Milliken University  | 2002-2005 |
| Chair, Abbreviated Injury Scale, Association for the Advancement<br>of Automotive Medicine                        | 2003-2005 |
| President-Elect, President, & Immediate Past President,<br>Association for the Advancement of Automotive Medicine | 2005-2008 |

## Honors and Awards

|  |      |
|--|------|
| Tau Beta Pi, Engineering Honorary  | 1964 |
| Chi Epsilon Civil Engineering Honorary   | 1964 |
| Phi Kappa Phi, All University Honorary   | 1964 |
| National Aeronautics and Space Administration<br>Group Achievement Award to Spacecraft Crew<br>Survival Integrated Investigation Team for outstanding<br>Completion of the Columbia Crew Survival Investigative Report | 2008 |

## Closed Publications

Smith, HL: "Non-GVN Personnel Responses to Radio Broadcast." (Confidential)  
Headquarters, US Army Assistance Command, Vietnam, May 1971.

Smith, HL: "Analysis of Viet Cong and North Vietnamese Army Personnel Responses  
to Radio Broadcasts." Headquarters, US Military Assistance Command, Vietnam,  
September 1971.

Smith, HL; Shulman, HI: "SAFEGUARD Operational Availability and Reliability  
Model." USASAFSEA Memorandum EAS-1-72, WSMR, NM, July 1972.

Banks, R.D.; Harding, R.M.; Smith, H.L. Injury Analysis of the Crew Members of STS-107 Space Shuttle Columbia. BRC, San Antonio, TX, NASA Contract (USRA Subaward #9930-275), 28 Jul 2006.

## **Publications and Presentations**

Smith, HL: "The Photoelastic Model and the Stress and Strain Distribution in a Soils Model." Texas Transportation Researcher, July 1969.

Smith, HL; Ivey, DL: "Tor-Shok and Roto-Shok Energy Absorbing Protective Barriers." Texas Transportation Institute, January 1969.

Smith, HL; Ivey, DL: "Vehicle Containment and Redirection by Minnesota Type Cable Guardrail Systems." Texas Transportation Institute, March 1969.

Smith, HL; Ivey, DL: "Timber Posts Energy Absorbing Protective Barriers." Texas Transportation Institute, April 1969.

Smith, HL; Neff, RD: Linear Absorption Coefficients for Gamma Rays in Tissue." Health Physics, July 1970.

Smith, HL; Ivey, DL; Dunlap, WA: "Long Term Overturning Loads on Drilled Shaft Footings." Texas Transportation Institute, January 1970.

Smith, HL: "Radioisotope Maximum Permissible Concentration Calculations Employing an IBM 360/65 Computer." Dissertation, Texas A&M University, January 1970.

Smith, HL; Ivey, DL; Dunlap, WA: "Dynamic Overturning Loads on Drilled Shaft Footings Used for Minor Service Structures." Texas Transportation Institute, January 1970.

Smith, HL; Ivey, DL; et al.: "Containment and Redirection Properties of Texas T1 Rail Systems." Texas Transportation Institute, January 1970.

Smith, HL: "Health Physics Univac 1108 Computer Radioisotope Inventory Program." Nuclear Weapons Effects Division, US Army Missile Test and Evaluation Directorate, White Sands Missile Range, NM, October 1970.

Smith, HL: "Radionuclide Maximum Permissible Concentration Calculations as Adapted to a Univac 1108 Computer." NWED, US Army Missile Test and Evaluation Directorate, WSMR, NM, October 1970.

Smith, HL: "Procedure for Calibration of the White Sands Missile Range Fast Burst Reactor Iodine Stack Monitor." NWED, US Army Missile Test and Evaluation Directorate, WSMR, NM, December 1970.

Smith, HL; Ivey, DL; Dunlap, WA; et al.: "Test and Evaluation of Vehicle Arresting, Energy Absorbing, and Impact Attenuation Systems." Texas Transportation Institute, November 1971.

Smith, HL; Shulman, HI: "Operational Availability and Reliability Model." IEEE Transactions on Reliability, December 1974.

Smith, HL; Beal, W; Chaudhuri, TK: "Significance of Skull Vertex View in Bone Scintigraphy." Clin Nuc Med 7:P20, 1982.

Rosen, PR; Smith, HL; Dodson, S; Chaudhuri, TK: "Correlation of Position Depending Pulmonary Fissure Sign and Roentgenographic Findings as Pleural Effusion Indicators." Clin Nuc Med 7:P21, 1982.

Chaudhuri, TK; Smith, HL: "Comparative Usefulness of Radioisotope Evaluations in Acute Gastrointestinal Bleeding." J Nuc Med 23:P78, 1982.

Smith, HL; Beal, W; Chaudhuri, TK: "Significance of Skull Vertex View in Bone Scintigraphy." J Nuc Med 23:P78, 1982.

Smith, HL; Rosen, PR; Dodson, S; Chaudhuri, TK: "Scintigraphic Position Dependent Pulmonary Fissure Sign as Pleural Effusion Indicator with Roentgenographic Correlation." Accepted for publication in Radiology.

Rosen, PR; Smith, HL; Dodson, S; Chaudhuri, TK: "Correlation of Position Dependent Pulmonary Fissure Sign and Roentgenographic Findings as Pleural Effusion Indicators." Southwest Chapter of the Society of Nuclear Medicine Annual Meeting, Dallas, Texas, March 25-28, 1982.

Smith, HL; Beal, W; Chaudhuri, TK: "Significance of the Skull Vertex View in Bone Scintigraphy." Society of Nuclear Medicine Annual Meeting, Miami Beach, FL, June 15-18, 1982.

Smith, HL; Rosen, PR; Dodson, S; Chaudhuri, TK: "Scintigraphic Position Dependent Pulmonary Fissure Sign as Pleural Effusion Indicator with Roentgenographic Correlation." 68th Scientific Assembly and Annual Meeting of the Radiological Society of North America, Chicago, IL, November 28 to December 3, 1982.

Smith, HL; Benedict, JV; Lenox, JB: "The Role of Biomechanics in the Determination of Injury Causation." New Orleans Bar Association Meeting, New Orleans, LA, January 15, 1988.

Benedict, JV; Lenox, JB; Labra, JJ; Raddin, JH; Smith, HL: "Principles and Concepts of Restraint System Biomechanics." United Services Automobile Association, San Antonio, TX, June 13, 1988.

Lenox, JB; Benedict, JV; Labra, JJ; Raddin, JH; Smith, HL: "Reducing Injuries Sustained in Automotive Crashes." United Services Automobile Association, San Antonio, TX, June 13, 1988.

Smith HL; Benedict, JV; Lenox, JB; Labra, JJ; Raddin, JH: "Biomechanics of Injury Causation." United Services Automobile Association, San Antonio, TX, June 13, 1988.

Smith, HL: "The Biomechanics of Trauma: Thorax and Abdomen." The Association for the Advancement of Automotive Medicine, San Antonio, TX, February 17, 1989, Course Instructor.

Raddin, JH; Ziegler, J; Benedict, JV; Smith, HL: "An Active Neck Protection System for Crew Members of High Performance Aircraft", Final Report for Research Conducted Under U.S.A.F. Small Business Innovation Research Contract F41622-89-C-1024, Technical Paper USAFSAM-TP-90-3, February 1990.

Raddin, JH; Scott, WR; Ziegler, J; Benedict, JV; Smith, HL: "Concept Feasibility Analysis for a Large Radius Track-Centrifuge", Final Report for Research Conducted Under U.S.A.F. Small Business Innovation Research Contract F41622-89-C-1025, Technical Paper USAFSAM-TP-90-3, June 1990.

Howard, Richard P., M.D., M.S.; James V. Benedict, Ph.D., M.D.; James H. Raddin Jr., M.D., S.M.; Harry L. Smith, Ph.D., M.D.: "Assessing Neck Extension-Flexion as a Basis for Temporomandibular Joint Dysfunction," Journal of Oral and Maxillofacial Surgery, 49:1210-1213, 1991.

Raddin, James H. Jr., M.D.; William R. Scott, Ph.D., John B. Bomar, Jr., Ph.D.; Harry L. Smith, Ph.D., M.D.; James V. Benedict, Ph.D., M.D.; Whitman E. McConnell, M.D.; Patricia K. Perret; Herbert M. Guzman: Adapting the Adam Manikin Technology for Injury Probability Assessment, Final Report for Period July, 1991 to February, 1992, Prepared for Armstrong Laboratory, Human Systems Division, Crew Systems Directorate, United States Air Force, Brooks AFB, TX.

McConnell, Whitman, E.; Richard P. Howard; Herbert M. Guzman; John B. Bomar; James H. Raddin, Jr.; James V. Benedict; Harry L. Smith; Charles P. Hatsell: "Analysis of Human Test Subject Kinematic Responses to Low Velocity Rear End Impacts."



Presentation to Society of Automotive Engineers, Inc., 1993 SAE International Congress & Exposition, Detroit, MI, March 1993, SAE #930089.

Scott, M.W.; Whitman E. McConnell; Herbert M. Guzman; Richard P. Howard; John B. Bomar; Harry L. Smith; James V. Benedict; James H. Raddin, Jr.; Charles P. Hatsell: "Comparison of Human and ATD Head Kinematics During Low-Speed Rear-end Impacts." Presentation to Society of Automotive Engineers, Inc., 1993 SAE International Congress & Exposition, Detroit, MI, March 1993, SAE #930094.

Smith, Harry L., Ph.D., M.D.: "Movement of Persons Within Vehicles or Occupant Kinematics." Iowa Academy of Trial Lawyers Advocacy Institute, Des Moines, IA, March 1993.

Scott, Michael W.; Labra, John J.; Guzman, Herbert; Benedict, James V.; Smith, Harry L.; Ziegler, James: "Injury Analysis of Impact between a Cage-Type Propeller Guard and A Submerged Head", SAFE 31st Annual Symposium, Las Vegas, NV, November 1993; & SAFE, 24:13-23, October 1994.

Smith, Harry L., Ph.D., M.D.; Benedict, James V.; Hatsell, Charles P.; Howard, Richard P.; Labra, John J.; Scott, William R. "Mike": "Biomechanics and Occupant Kinematics in the Trucking and Motor Carrier Environment", American Bar Association National Institute on Tort and Insurance Practice, Transportation Megaconference II, New Orleans, LA, March 1994.

Smith, H.L., "Imaging in Injury Causation Mechanism Determination" Presentation, Society of Automotive Engineers, Phoenix, AZ, January 19, 1999.

Banks, R; Harding, R; Smith, H. Assessing injury potential in rear-end automotive vehicle collisions, *Frontiers in Whiplash Trauma*, Yoganendan, N; Pintar, FA, eds. IOS Press, The Netherlands, 2000.

Banks, R; Martini, J; Smith, H; Bowles, A; McNish, T; Howard, R. Alignment of the Lumbar Vertebrae in a Driving Posture. *J. Crash Prevention and Injury Control*, August 2000, Vol. 2(2), pp. 123-130.

Smith, H.L., "Biomechanical Parameters of the Head" Presentation at The Biomechanics of Impact Conference of the Association for the Advancement of Automotive Medicine/National Association of Medical Examiners, Richmond, VA, October 12, 2001.

Smith, H.L., Commentary-Comments in Review of "Radiographic Detection of Rib Fractures: A Restraint-Based Study of Occupants in Car Crashes". *Traffic Injury Prevention*, March 2002, Vol. 3(1), pp. 59-60.

Chaudhuri, J.K., Straw, J.D., Medina, P., Smith, H., Chaudhuri, T.K., Evaluation of Ultra High Energy Collimation to Produce Planar, SPECT and 3D Rotating Gamma Camera Images with F-18-FDG for Detection of Intra-Thoracic Lesions, World J. Nuc. Med., September 2002, Vol. 1, supp. 2; also presented at 8th Congress of the World Federation of Nuclear Medicine & Biology, Santiago, Chile, Sept. 29-Oct. 2, 2002.

Smith, H.L., "Imaging in Injury Causation Mechanism Determination", Presentation, Society of Automotive Engineers, Troy, MI, October 19, 2004.

### **Academic Duties**

Clinical Assistant Professor 1983-1998  
University of Texas Health Science Center  
San Antonio, Texas

Lecturer 1999-2004  
Society of Automotive Engineers  
Warrendale, Pennsylvania

Guest Lecturer in Biomechanics 2005-Present  
University of Texas at San Antonio  
ME6973