

Curriculum Vitae

Personal Information

Paul M. Goggans
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Education

- B.S. Electrical Engineering, Auburn University, May 1977, With High Honor
- M.S. Electrical Engineering, Auburn University, December 1978, Thesis: Statistical Analysis of Backgrounds for the Development of Infrared Warning Receivers, Advisor: Dr. L. J. Pinson
- Ph.D. Electrical Engineering, Auburn University, March 1990, Dissertation: A Combined Method of Moments and Approximate Boundary Condition Solution for Scattering from a Conducting Body with a Dielectric Filled Cavity, Advisor: Dr. T. H. Shumpert

Professional Experience

- Staff Member Sandia National Laboratories, Radar Signal Analysis Division, January 1979 to August 1985.
- Adjunct Professor University of New Mexico, September 1984 to May 1985.
- Instructor Auburn University, September 1985 to February 1990.
- Assistant Professor University of Mississippi, February 1990 to July 1994
- Consultant U.S. Army Research Office under a Scientific Services Contract, July 1990 to December 1995.
- Associate Professor University of Mississippi, August 1994 to Present
- Visiting Professor Boise State University, August 2001 to May 2002

Publications

- Papers
- P. M. Goggans and C-Y Chan, "Antenna array design as inference," in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 28th International Workshop*, Carlos A. B. Pereira, Julio Michael Stern, Marcelo S. Lauretto, and Nestor Caticha, Eds. 2008, AIP Conference Proceedings, Submitted.
- A. Mehmood, P. M. Goggans, and J. M. Sabatier, "Ultrasonic Doppler vibrometry using direct undersampling," *The Journal of the Acoustical Society of America*, vol. 122, no. 5, pp. 3090–3090, 2007.

P. M. Goggans and C-Y Chan, "Assigning priors for ordered and bounded parameters," in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 27th International Workshop*, Kevin H. Knuth, Ariel Caticha, Julian L. Center, Adom Giffin, and Carlos C. Rodriguez, Eds. 2007, vol. 954, pp. 276–282, AIP Conference Proceedings.

R. W. Scharstein and P. M. Goggans, "Conductance between two strip electrodes on a conducting ground with a nearby tunnel," *Electromagnetics*, vol. 27, no. 4, pp. 183–194, May 2007.

P. M. Goggans and Y. Chi, "Electromagnetic induction landmine detection using Bayesian model comparison," in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 26th International Workshop*, Ali Mohammad-Djafari, Ed. 2006, vol. 872, pp. 533–540, AIP Conference Proceedings.

N. Xiang, P. M. Goggans, T. Jasa, and M. Kleiner, "Evaluation of decay times in coupled spaces: Reliability analysis of Bayesian decay time estimation," *Journal of the Acoustical Society of America*, vol. 117, pp. 3705–3715, June 2005.

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P. M. Goggans and Y. Chi, "Using thermodynamic integration to calculate the posterior probability in Bayesian model selection problems," in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 23rd International Workshop*, Gary J Erickson and Yuxiang Zhai, Eds. 2004, vol. 707, pp. 59–66, AIP Conference Proceedings.

N. Xiang and P. M. Goggans, "Evaluation of decay times in coupled spaces: Bayesian decay model selection," *Journal of the Acoustical Society of America*, vol. 113, pp. 2685–2697, May 2003.

N. Xiang, J. M. Sabatier, and P. M. Goggans, "Bayesian probability analysis for acoustic–seismic landmine detection," *The Journal of the Acoustical Society of America*, vol. 112, no. 5, pp. 2390–2391, 2002.

N. Xiang and P. M. Goggans, "Evaluation of decay times in coupled spaces: Bayesian parameter estimation," *Journal of the Acoustical Society of America*, vol. 110, pp. 1415–1424, September 2001.

P. M. Goggans, C. R. Smith, and C-Y Chan, "Landmine detection using model selection," in *Detection and Remediation Technologies for Mines and Minelike Targets VI*, Abinash C. Dubey, James F. Harvey, J. Thomas Broach, and Vivian George, Eds. 2001, vol. 4394, pp. 634–640, SPIE.

P. M. Goggans, C. R. Smith, and C. J. Hickey, "Detection of buried landmines using Bayesian model selection," in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 20th International*

Workshop, Ali Mohammad-Djafari, Ed. 2000, vol. 568, pp. 479–491, AIP Conference Proceedings.

P. M. Goggans, C. R. Smith, and N. Xiang, “Increasing speckle noise immunity in LDV-based acoustic mine detection,” in *Proc. SPIE: Detection and Remediation Technologies for Mines and Minelike Targets V*, A. Dubey, J. Harvey, J. Broach, and R. Dugan, Eds., April 2000, vol. 4038, pp. 719–724.

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C. R. Smith and P. M. Goggans, “Optimal pulses,” in *Bayesian Inference and Maximum Entropy Methods in Science and Engineering: 19th International Workshop*, J. T. Rychert, G. J. Erickson, and C. R. Smith, Eds. 1990, vol. 567, pp. 29–41, AIP Conference Proceedings.

J. D. Pursel and P. M. Goggans, “A finite-difference time-domain method for solving electromagnetic problems with bandpass-limited sources,” *IEEE Trans. Antennas Propagat.*, vol. 47, no. 1, pp. 9–15, January 1999.

J. D. Pursel and P. M. Goggans, “A student programming project: Part I - Computation of the steady state radar cross section of realistic targets,” in *Proceedings of the 1995 IEEE Antennas and Propagation Society International Symposium*, June 1995, vol. 2, pp. 1091–1094.

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P. M. Goggans and A. W. Glisson, “A surface integral equation formulation for low contrast scatterers based on radiation currents,” *Journal of Applied Computational Electromagnetics*, vol. 10, no. 1, March 1995.

A. Z. Elsherbeni and P. M. Goggans, “Time domain response of simulated 2D composite scatterers,” in *Proceedings of the 11th Annual Review of Progress in Applied Computational Electromagnetics*, March 1995, pp. 542–550.

P. M. Goggans, A. A. Kishk, and A. W. Glisson, “Electromagnetic scattering from objects composed of multiple homogeneous regions,” *IEEE Trans. Antennas Propagat.*, vol. 42, no. 6, pp. 865–871, June 1994.

A. A. Kishk and P. M. Goggans, “Electromagnetic scattering from two-dimensional composite objects,” *Journal of Applied Computational Electromagnetics*, vol. 9, no. 1, pp. 32–39, March 1994, Won the Best Paper Award for papers published in the Journal of the Applied Computational Electromagnetics Society for the year proceeding the 1995 ACES conference.

- R. Inguva, C. R. Smith, P. M. Goggans, and D. Andersh, "Time domain electromagnetic responses and model uncertainties," in *Proceedings of the 10th Annual Review of Progress in Applied Computational Electromagnetics*, March 1994, vol. 2, pp. 353–363.
- S. Shu, P. M. Goggans, and A. A. Kishk, "Computation of cutoff wavenumbers for partially filled waveguides of arbitrary cross section using surface integral formulations and the method of moments," *IEEE Trans. Microwave Theory and Techniques*, vol. 41, no. 7, pp. 1111–1118, July 1993.
- C. R. Smith and P. M. Goggans, "Radar target identification," *IEEE Antennas and Propagation Magazine*, vol. 35, no. 2, pp. 27–37, April 1993.
- P. M. Goggans, "Calculation of transient scattering from two-dimensional objects using a frequency domain method of moments approach," in *Proceedings of the 9th Annual Review of Progress in Applied Computational Electromagnetics*, March 1993, pp. 72–80.
- A. A. Kishk, P-S Kindal, and P. M. Goggans, "Analysis of dielectric coated metallic hard struts using equivalent surface currents at all material interfaces," in *Proceedings of the 1992 IEEE Antennas and Propagation Society International Symposium*, July 1992, vol. 2, pp. 1141–1144.
- B-S Yang, A. W. Glisson, and P. M. Goggans, "Interior resonance problems associated with hybrid integral equation/partial differential equation methods," in *Proceedings of the 1992 IEEE Antennas and Propagation Society International Symposium*, July 1992, vol. 2, pp. 781–784.
- P. M. Goggans, A. A. Kishk, and A. W. Glisson, "A systematic treatment of conducting and dielectric bodies with arbitrarily thick or thin features using the method of moments," *IEEE Trans. Antennas Propagat.*, vol. 40, no. 5, pp. 555–559, May 1992.
- A. W. Glisson, P. M. Goggans, and A. A. Kishk, "Electromagnetic scattering by bodies with complete or partial material coatings of varying thickness," in *Proceedings of the 8th Annual Review of Progress in Applied Computational Electromagnetics*, March 1992, pp. 1–8.
- A. A. Kishk, A. W. Glisson, and P. M. Goggans, "Scattering from conductors coated with materials of arbitrary thickness," *IEEE Trans. Antennas Propagat.*, vol. 40, no. 1, pp. 108–112, January 1992.
- P. M. Goggans and T. H. Shumpert, "Backscatter RCS for TE and TM excitations of dielectric-filled cavity-backed apertures in two dimensional bodies," *IEEE Trans. Antennas Propagat.*, vol. 39, no. 8, pp. 1224–1227, August 1991.
- P. M. Goggans, A. A. Kishk, and A. W. Glisson, "The use of 'near-self' impedance elements in the MM solution for scattering from composite bodies with thin features," in *Proceedings of the 1991 IEEE Antennas and Propagation Society International Symposium*, June 1991, vol. 3, pp. 1484–1487.

P. M. Goggans and T. H. Shumpert, "A new surface impedance function for the aperture surface of a conducting body with a dielectric filled cavity," *IEEE Trans. Antennas Propagat.*, vol. 39, no. 7, pp. 960–967, July 1991.

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P. M. Goggans, C. J. Hickey, J. M. Sabatier, R. Waxler, D. Velea, C-Y Chan, and H. Wheeler, "Model based signal processing of laser doppler vibrometry data for mine detection," Report for Contract Number DAAD19-99-1-0108 with the US Army Research Office, Research Triangle Park, NC, University of Mississippi, June 2002.

P. M. Goggans and C. E. Smith, "Initial numerical and experimental studies to develop a ground coupling radar for location and identification of unexploded artillery shells," Report for Contract Number DAAH049510404 with the US Army Research Office, Research Triangle Park, NC, University of Mississippi, February 1996.

P. M. Goggans and J. D. Pursel, "Antenna-dependent radar profiles," Report for Contract Number DAAL0391C0034 with the US Army Research Office, Research Triangle Park, NC, University of Mississippi, December 1995.

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P. M. Goggans, "Radar profiles - numerical studies and scattering center models," Report for Contract Number DAAL0391C0034 with the US Army Missile & Space Intelligence Center, Redstone Arsenal, AL, University of Mississippi, April 1993.

P. M. Goggans, "High range resolution radar profiles," Report for Contract Number DAAL0386D0001 with the US Army Missile & Space Intelligence Center, Redstone Arsenal, AL, University of Mississippi, October 1991.

P. M. Goggans and T. H. Shumpert, "Scattering models for missile fuze antenna interactions, part II, scattering from two-dimensional conducting and dielectric generalized cylinders using hybrid MOM-PO and MOM-ABC solution techniques," Report for Contract Number DAAH0186CA109 with the US Army Missile & Space Intelligence Center, Redstone Arsenal, AL, Auburn University, August 1989.

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P. M. Goggans, "Evaluation of B83 drop restrictions," Secret Formerly Restricted Data SAND840168, Sandia National Laboratories, April 1984.

P. M. Goggans, "Simulation of a binary phased locked loop," Unclassified SAND822362, Sandia National Laboratories, January 1983.

P. M. Goggans, D. A. Jelinek, and W. F. Nielsen, "Securicom: An antijam, secure message, security force radio communication system, technical summary," Unclassified Limited Distribution SAND800347, Sandia National Laboratories, March 1981.

L. J. Pinson and P. M. Goggans, "Infrared target/background discrimination phase I - Background spectral modeling," Report for Contract Number F33615-77-C-1188 with the Air Force Avionics Laboratory, Air Force Systems Command, United States Air Force, Wright-Patterson AFB, Ohio, Auburn University, 1978.

Oxford, Mississippi, May 20, 2008