

Wendy L. Martinez (Poston), Ph.D.

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PROFESSIONAL EXPERIENCE

Program Officer, Information Integration Program, Office of Naval Research (1997 to present): I hold the position of Science and Technology Program Officer in the Mathematics, Computers, and Information Research Division. My mission is to provide naval science and technology products, options, and opportunities for the Navy and Marine Corps of the future by increasing knowledge and understanding in mathematics and statistics directly related to long-term Department of Defense needs; setting strategic research goals and initiating projects that achieve them; and directing research efforts in science and technology that advance the state-of-the-art and transition to the warfighter. These efforts often entail radically new concepts, multidisciplinary research teams, and feasibility demonstrations. Responsibilities/accomplishments:

- I manage a vertically integrated research and development program comprising government, academic, and industry researchers. This includes science and technology efforts at the basic research, applied research, and advanced technology development levels. My portfolio consists of approximately 60 projects with an annual budget of 25M to 30M.
- I manage research in statistical inference, pattern recognition and classification, data mining, probability theory, Bayesian networks, simulation methods for inferential statistics, decision-making under uncertainty, scientific and statistical visualization, network intrusion detection, and automated information integration.
- As a Program Manager for the applied research Command and Control and Combat Systems program, I am responsible for writing the annual solicitation, obtaining an outside review panel, evaluating proposals, providing feedback to offerors, making funding decisions, handling issues with the awards, and holding program reviews.
- I am a project monitor for the KDD (Knowledge Discovery and Dissemination) program in the intelligence community (April 2006 to the present). This partnership led to jointly funding two projects with the KDD program.
- I am a member of the international TTCP (The Technical Cooperation Program) C3I Group, Data Fusion Panel, where I work with representatives from the US (Army, Navy, and Air Force), United Kingdom, Australia, and Canada. The goal is to foster international collaborative research efforts in information fusion.
- I prepare and deliver oral presentations to the public and government on research issues, technical accomplishments, the state of the program, and future research directions. These also include invited presentations at conferences and universities, where I describe DoD funding opportunities.
- In my program, I support statistical education for minorities and women. For example, a Doctoral program in computational statistics was created at the University of Puerto Rico because of my ONR program support.
- I support and mentor young researchers in statistics through the Institute of Mathematical Statistics New Researchers Conference. This involves continued financial support for the conference, as well as presentations at the conference to help new researchers understand how to apply for federal funding.

Adjunct Professor, Strayer University (1995 – 2006); George Mason University (1995 – 1997): I taught graduate and undergraduate courses in mathematics, statistics, computational sciences, and databases.

- Courses taught at Strayer University: Quantitative Methods (graduate level), Descriptive Statistics, Algebra, Basic Mathematics, History & Methods of Science, Logic, and Databases
- Courses taught at George Mason University: Scientific Computing, Spatial Statistics, Applied Statistics, Scientific and Statistical Visualization, Scientific and Statistical Databases, Wavelets (all were at the graduate level)

Deputy Program Manager In-House Laboratory Independent Research (ILIR) Program, Naval Surface Warfare Center, Dahlgren, Virginia, 2000 to 2002: I held the position of Deputy Program Manager for the Center's basic research program. Duties were to:

- Plan, evaluate, and assess the research program in accordance with strategic goals of the Center, the Navy, and the nation.
- Expand the scope and diversity of the program.
- Promote more efforts in statistics, mathematics, and information science.
- Prepare annual written report to the Office of Naval Research on the state of the ILIR program.
- Develop, maintain, and participate in the ILIR process: call for proposals, evaluation and selection of proposals for funding, and annual progress reviews.

Scientist, Naval Surface Warfare Center, Dahlgren, Virginia, 1991 to 2002: I held the position of Scientist for Algorithm Development. Duties were to:

- Develop, analyze, and evaluate algorithms for modeling and simulation of sensor and Navy/USMC systems.
- Translate system attributes and physical characteristics into computer simulations.
- Perform basic research in the theory of probability density estimation, signal processing for automatic target recognition, image texture analysis for non-destructive testing, visualization of massive high-dimensional data sets, statistical pattern recognition, dimensionality reduction, parallel programming, and Monte Carlo methods for inferential statistics.

EDUCATION

Ph.D. Computational Sciences and Informatics – Computational Statistics, George Mason University, 1995

M.S. Aerospace Engineering, George Washington University, NASA Langley Research Center, 1991

B.S. Physics and Mathematics (double major), Cameron University, 1989

CERTIFICATION

SECRET clearance

DAWIA (Defense Acquisition Workforce Improvement Act) – Level III, S&T Management

DISSERTATION/THESIS

Optimal Subset Selection Methods, Ph.D. Dissertation, George Mason University, 1995

Optimal Sensor Locations for On-Orbit Modal Identification of Large Space Structures, Master's Thesis, George Washington University, 1991

BOOKS

Computational Statistics Handbook with MATLAB, 2nd Edition, W. L. Martinez and A. R. Martinez, CRC Press, 2007

Exploratory Data Analysis with MATLAB, W. L. Martinez and A. R. Martinez, CRC Press, 2004

Data Viz II, Special Issue of *Computational Statistics and Data Analysis*, Wegman, Solka, and Martinez, 43 (4), 2003

Computational Statistics Handbook with MATLAB, W. L. Martinez and A. R. Martinez, CRC Press, 2002

SOFTWARE – MATLAB TOOLBOXES (written and freely distributed)

Computational Statistics Toolbox, 2002/2007
Exploratory Data Analysis GUI Toolbox, 2006
Exploratory Data Analysis Toolbox, 2004
Model-Based Clustering Toolbox, 2003

PATENTS

U.S. Patent No. 5,859,919 Method and system for measuring surface roughness using fractal dimension values (1999)
U.S. Patent No. 5,384,895 Self-organizing neural network for classifying pattern signatures using ‘a posterior’ conditional class probability (1995)
U.S. Patent No. 5,351,311 Neural network for detection and correction of local boundary misalignment between images (1994)
U.S. Patent No. 5,365,472 Non-linear resistive grid kernel estimator useful in single feature, two-class pattern classification (1994)

AWARDS

Elected member of the International Statistical Institute, 2007
Elected Fellow of the American Statistical Association, 2006
Special Act Award, ONR, 1999
NSWCDD Independent Research Excellence Award, 1995
GMU Center for Computational Statistics Outstanding Ph.D. Dissertation in Statistical Science, 1995
NSWCDD Fellowship Award, 1993 – 1994
NASA – JIAFS Fellowship Award, 1989 – 1991

PROFESSIONAL ACTIVITIES

Joint Statistical Meetings Program Chair 2009
Elected Chair, ASA Section on Statistics in Defense and National Security, 2009
Coordinating Editor for the journal *Statistics Surveys*, 2006 – 2008
Chair, ASA Committee on Outreach Education, 2005 – 2010
JSM Program Chair 2006, ASA Section on Statistics in Defense and National Security
Track Chair, Conf on Quantitative Methods & Statistical Applications in Defense and National Security, 2006
Member of Army Conference on Applied Statistics Executive Board, 2000 and ongoing
Washington Statistical Society, Statistics and National Security program Co-Chair, 2004 and ongoing
JSM Program Chair 2005, ASA Section on Statistics in Defense and National Security
ENAR Program Chair 2005, Section on Statistics in Defense and National Security
Member of ASA, Interface, IASC, and INFORMS
Member of Steering Committee NSF Workshop on Density Estimation and Bump Hunting, 1995
Attend meetings of NAS Committee on Applied and Theoretical Statistics (CATS), 1999 and ongoing
Session Organizer and Chair for Interface and JSM meetings
Referee papers for CSDA, JCGS, JSPI, *Journal of Nonparametrics*
Member of the Historically Black Colleges and Universities/Minority Institutions Council – ONR

PUBLICATIONS

2 Books
4 Book chapters
4 Book reviews
22 Refereed journal articles
27 Invited presentations
29 Conference papers
6 Technical reports