

Curriculum Vitae

David R. Forrest, Jr., Ph.D., P.E.

Assistant Research Scientist

Business Address:

Virginia Institute of Marine Science
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†- - New items for review.

Education

University of Virginia, Charlottesville, VA. Department of Systems Engineering, School of Engineering and Applied Science. Ph.D.: August, 2003.

University of Virginia, Charlottesville, VA. Department of Systems Engineering, School of Engineering and Applied Science. M.S.: 1999.

University of Missouri, Rolla, MO. Mechanical Engineering, School of Engineering. B.S.: 1986.

Courses: Chemistry, calculus, differential equations, metallurgy, electronics, computer science, economics, thermodynamics, engineering mechanics: statics and dynamics, heat transfer, energy conversion, kinematics-robotics, control systems, numerical analysis

Advanced Courses: Time Series Analysis, Forecast-Decision Systems, Data Mining, Response Surface Methodology, Financial Engineering, Applied Linear Models, Survival Analysis, Risk Analysis, Math Programming, Stochastic Systems, Discrete Event Stochastic Simulation

Employment

2004-Present: Assistant Research Scientist. *Department of Physical Sciences, Virginia Institute of Marine Science, Gloucester Point, VA.* Real time storm surge forecasting and interoperable transport of ocean observation information

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2004-2006: IT Coordinator. *SURA Coastal Ocean Observation Program, Southeastern University Research Association, Washington DC.*
Coordination of multi-institutional information sharing.

1998-2003: Research Assistant. *Department of Systems Engineering, University of Virginia, Charlottesville, VA.* Researched multivariate processes for semiconductor manufacturing. External funding provided by NSF.

1996-1998: Teaching Assistant. *Department of Systems Engineering Sciences, University of Virginia, Charlottesville, VA.* Courses in operations research, discrete event simulation, response surface methodology, quality engineering.

1990-1996: Manufacturing Engineer. *Pohlman, Inc., Chesterfield, Missouri.* Project engineering for defense and automotive projects; creation, documentation, and implementation of QS-9000, ISO-9000, MIL-Q-9858A, and MIL-I-45208A quality systems; expedition of special projects; process design and implementation; and supplier surveys, for this precision machining company.

1986-1990 Engineer. *Maple Park Development., Kirkwood, Missouri.* Structural engineering, computer training, word processing, maintenance, and repair for this real estate development company.

1989 Consultant. *Executive Express Inc., Ladue, Missouri.* Created an accounting system for this courier company using C and RBASE, maintenance through 1993.

1987-1989 Consultant / Computer Programmer. *St. Louis Community College-Meramec & Delta Gamma Foundation* Wrote data analysis programs and user interfaces.

1988-1989 Data Processing Manager. *Coat and Tie Courier., Kirkwood, Missouri* Wrote an invoice and account tracking system using RBASE, still used through 1995.

Research

Refereed Publications

Bogden, P., T. Gale, G. Allen, J. MacLaren, G. Almes, G. Craeger, J. Bintz, L. D. Wright, H. Graber, N. Williams, S. Graves, H.

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Conover, K. Gallupi, R. Luettich, W. Perrie, B. Toulany, Y. P. Sheng, J. R. Davis, H. Wang, **D. Forrest**. 2006. "Architecture of a Community Infrastructure for Predicting and Analyzing Coastal Inundation," Marine Technology Society. Vol. 41, No. 1.

Mastrangelo, C.M. and D.R. Forrest. 1997. "Multivariate Auto-correlated Processes: Data and Shift Generation," Journal of Quality Technology. Vol 34, No. 2, 216-220, (StatLib. 34-2-2, <http://lib.stat.cmu.edu/jqt/34-2-2>), April 2002.

Theses Written

Forrest, D.R. 2003. High Dimensional Data Mining in Complex Manufacturing Processes. Ph.D. Dissertation. University of Virginia, August 2003.

Forrest, D.R. 1999. A Comparison of Multivariate SPC Methods Applied to Autocorrelated Data. M.S. Thesis. University of Virginia. December, 1999.

Unrefereed Publications

Stamey, B., K. Carey, H. Wang, W. Smith, B. Smith, D. Forrest, K.H. Cho, J. Billet, A. Stern, G. Mineart, S. Lynn. 2006. Next Generation Flood Warning: Rapid Prototype Development. Sigma. September 2006, 17-23.

Contributed Scholarly Papers and Talks

†- Davis, J. R., Paramygin, V. A., Forrest, D. and Sheng, Y. P. "On the generation and use of probabilistic wind fields for the simulation of storm surge and inundation" 2008 Ocean Sciences Meeting. Orlando FL. March 2008.

†- Forrest, D.R. Linking Observing and Modeling Systems. 2007. Virginia Institute of Marine Science Observing Systems Lecture, October 2007

†- Forrest, D.R. Linking Observing and Modeling Systems. 2007. VIMS Department Seminar, 11 October 2007

Forrest, D., H. Wang, C. Friedrichs. 2006. Detailed event notification of Model and Observation Data using RSS. AGU Fall 2006 Meeting. San Francisco, CA 2006

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- Bermudez, L., P. Bogden, E. Bridger, D. Forrest, J. Graybeal, G. Creager. 2006. Towards an Ocean Observing System of Systems. MTS/IEEE Oceans '06 Conference. Boston, MA 2006
- Stamey, B., K. Carey, H. Wang, W. Smith, B. Smith, D. Forrest, K.H. Cho, J. Billet, A. Stern, G. Mineart, S. Lynn. 2006. An Integrated Coastal Observation and Flood Warning System: Rapid Prototype Development. MTS/IEEE Oceans '06 Conference. Boston, MA 2006
- Forrest, D.R., 2005. VIMS Storm Surge Modeling – Our collaboration with SCOOP. VIMS Department Seminar. Gloucester Point, VA, November 2005.
- Forrest, D.R, and Mastrangelo. 2005. Hierarchical Monitoring of Defect Rates with Process Data. 2005. American Society for Quality, Fall Technical Meeting. St Louis, October 2005.
- Mastrangelo, C.M. and D.R. Forrest. 2001. High Dimensional Data Mining in Semiconductor Manufacturing. IEEE Systems, Man, and Cybernetics 2001, Tucson, USA, October 7-10, 2001.
- Mastrangelo, C.M. and D.R. Forrest. 1999. Multivariate EWMA with Correlated Observations. 1999. INFORMS National Meeting, Philadelphia, November 1999.

Work in Progress

- †- Davis, J. R., Paramygin, V. A., Forrest, D. and Sheng, Y. P. “On the generation and use of probabilistic wind fields for the simulation of storm surge and inundation” In preparation.

Research Reports from Grant or Contract Work

- Forrest, David R. and Christina M. Mastrangelo 1998. AbTech Corporation’s ModelQuest Enterprise and MarketMiner. University of Virginia, SEAS Report No. SE-ABT-7902-98. November 1998. 88 pp.

Fellowships and Grants

- Robert T Ferguson III Memorial Award. 1999. Awarded by the University of Virginia Systems Engineering Department

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Research assistantship through NSF funded Multivariate Process Monitoring with Correlated Data CAREER grant 9501903 for Christina Mastrangelo. 1995

Professional Service

Reviews

†- Computers and Geosciences: 1 review.

Service to Professional Societies

National Society of Professional Engineers

Institute for Operations Research and Management Science

American Society for Quality

American Society of Mechanical Engineers

Society of Manufacturing Engineers

Research Cruise on R.V. Connecticut, June, 2000. New York

Research Cruise on R.V. Seward Johnson II, May, 2003. Ravenna, Italy

National Ocean Science Bowl. Science Judge, Blue Crab Bowl, Gloucester Point, VA 2004

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Courses Taught

UVA Sys 321, Operations Research, Teaching Assistant to James Lark. 70 undergraduate students. Text: “Introduction to Operations Research”, Hillier and Lieberman.

UVA Sys 321, Operations Research, Teaching Assistant to Yakov Haimes. 70 undergraduate students. Text: “Risk Modeling, Assessment and Management”, Y. Haimes

UVA Sys 605, Stochastic Systems, Teaching Assistant to Stephen Strickland, 30 graduate students. Text: “Probability Models” Sheldon Ross

UVA Sys 605, Probabilistic Analysis, Teaching Assistant to K. P. White, 35 professional masters students. Text: “Concepts in Probability and Stochastic Modeling”, Higgins and Keller-McNulty.

UVA Sys 674, Total Quality Management, Teaching Assistant to Christina Mastrangelo, 30 graduate and professional students. Text: “Introduction to Statistical Quality Control” Montgomery

UVA Sys 674, Total Quality Management, Teaching Assistant to Christina Mastrangelo, 25 graduate students. Text: “Introduction to Statistical Quality Control” Montgomery

UVA Sys 618, Data Mining. Assistant to Donald Brown, 40 graduate students. Texts: “Pattern Recognition and Neural Networks”, Ripley, 1996. “The Elements of Statistical Learning”, Hastie, Tibshirani, Friedman, 2001.

UVA Sys 763, Response Surface Methodology, Teaching Assistant to Christina Mastrangelo, 20 graduate students. Text: “Response Surface Methodology” Montgomery and Myers

March, 2008