

# Adam L. Pintar

Statistical Engineering Division  
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## Education

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- **Ph.D. in Statistics**  
*Iowa State University*, Ames, IA, December, 2010
  - Dissertation Title: Model Selection for Good Estimation or Prediction Over a User-Specified Covariate Distribution
- **M.S. in Statistics**  
*Iowa State University*, Ames, IA, May, 2007
  - Project Title: Ordering the Works of Plato
- **M.S. in Mathematics**  
*Pittsburg State University*, Pittsburg, KS, December 2004
  - Project Title: Accelerated life Testing Assuming Exponential Distributions
- **B.S. in Mathematics**; minor in Computing  
*Pittsburg State University*, Pittsburg, KS, May, 2003

## Research Interests

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- Model Selection
- Bayesian Methods
- Experiment Design
- Statistical Computing
- Measurement Uncertainty
- Environmental Statistics

## Professional Experience

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- **Statistical Engineering Division, National Institute of Standards & Technology (NIST)**, Gaithersburg, MD
  - *2010 - present* Mathematical Statistician
- **Department of Statistics, Iowa State University**, Ames, IA
  - *Spring 08, Fall 08, Spring 09, Fall 09, and Spring 10* Statistical Consultant (the Agriculture Experiment Station and the College of Engineering)
- **Statistical Sciences Group, Los Alamos National Laboratory**, Los Alamos, NM
  - *Summer 09* Student Intern
  - *Summer 08* Student Guest Scholar
- **Statistics in the Community**, Ames, IA
  - *August 07 - September 10* pro bono statistical consulting

## Honors & Awards

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- Materials Measurement Laboratory Accolade for technology transfer, NIST, Gaithersburg, MD, 2015.
- Dan Mowrey Consulting Excellence Award, Department of Statistics, Iowa State University, Ames, IA, 2010.
- Fall Technical Conference Student Grant, Fall Technical Conference, Indianapolis, IN, 2009.

- Mary G. & Joseph Natrella Scholarship, Quality and Productivity Research Conference, Yorktown Heights, NY, 2009.
- Holly C. & E. Beth Fryer Award in Statistics, Department of Statistics, Iowa State University, Ames, IA, 2007.
- Research Training Group Fellowship, Department of Statistics, Iowa State University, Ames, IA, 2007 – 2009.
- Vertical Integration of Research and Education (VIGRE) Fellowship, Department of Statistics, Iowa State University, Ames, IA, 2006 – 2007.
- Excellence in Research Award, Department of Mathematics, Pittsburg State University, Pittsburg, KS, 2005.

## Publications

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### Refereed Journal Articles

- Z. H. Levine and **A. L. Pintar** (accepted 2015) A Fixed-memory Moving, Expanding Window for Obtaining Scatter Corrections in X-Ray CT and Other Stochastic Averages. *Computer Physics Communications*.
- Z. H. Levine, B. L. Glebov, **A. L. Pintar**, and A. L. Migdall (2015) Absolute calibration of a variable attenuator using few-photon pulses, *Opt. Express*, **23**, 16372 – 16382.
- N. F. Zhang and **A. L. Pintar** (2014) Monitoring Process Variability for Stationary Process Data. *Quality and Reliability Engineering International*, online early view.
- M. M. Schantz, G. Eppe, J-F. Focant, C. Hamilton, N. A. Heckert, R. M. Heltsley, D. Hoover, J. M. Keller, S. D. Leigh, D. G. Patterson Jr., **A. L. Pintar**, K. E. Sharpless, A. Sjödin, W. E. Turner, S. S. VanderPol, and S. A. Wise (2013) Milk and serum standard reference materials for monitoring organic contaminants in human samples. *Analytical and bioanalytical chemistry*, **405**, 1203 – 1211.
- **A. L. Pintar**, C. M. Anderson-Cook, H. Wu (2013) Prediction-based Model Selection for Bayesian Multiple Regression Models. *Advances and Applications in Statistics*, **32**, 83 – 117.
- Z. H. Levine, **A. L. Pintar**, J. G. Hagedorn, C. P. Fenimore, and C. P. Heussel (2012) Uncertainties in RECIST as a measure of volume for lung nodules and liver tumors. *Medical physics*, **39**, 2628 – 2637.
- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu (2012) Model Selection for Good Estimation and Prediction over a User-Specified Covariate Distribution for Linear Models under the Frequentist Paradigm. *Quality and Reliability Engineering International*, **28**, 767 – 782.
- T. J. Robinson, **A. L. Pintar**, C. M. Anderson-Cook, and M. S. Hamada (2012) A Bayesian Approach to the Analysis of Split-Plot

Combined and Product Arrays and Optimization in Robust Parameter Design. *Journal of Quality Technology*, **44**, 304 – 320.

- **A. L. Pintar**, L. Lu, C. M. Anderson-Cook, and G. L. Silver (2012) Bayesian estimation of reliability for batches of high reliability single-use parts. *Quality Engineering*, **24**, 473 – 485.
- C. C. White, D. L. Hunston, K. T. Tan, J. J. Filliben, **A. L. Pintar**, and G. Schueneman (2012) A Systematic Approach to the Study of Accelerated Weathering of Building Joint Sealants. *Journal of ASTM International*, **9**.
- A. R. Patterson, R. B. Baker, D. M. Madson, **A. L. Pintar**, and T. Opriessnig (2011) Disinfection protocols reduce the amount of porcine circovirus type 2 in contaminated 1: 61 scale model livestock transport vehicles. *Journal of Swine Health and Production*, **19**, 156 – 164.
- J. Hobbs, L. Fostvedt, **A. L. Pintar**, D. Rockoff, E. Kim, and R. Griffiths (2010) Fixed-cost vs. Fixed-risk post-election audits in Iowa. *Chance*, **23**, 13 – 17.

#### Refereed Book Chapters

- **A. L. Pintar** and F. T. Lombardo (2013) Mapping Return Values of Extreme Wind Speeds in *Risk Assessment and Evaluation of Predictions*, eds. M-L. Ting, M. Gail, R. Pfeiffer, G. Satten, T. Cai, and A. Gandy, Springer.

#### Technical Reports

- R. R. Zarr and **A. L. Pintar** (2012) SRM 1453, Expanded Polystyrene Board, for Thermal Conductivity from 281 K to 313 K. *NIST Special Publication 260* <http://132.163.4.18/srm/upload/SP260-175.pdf>.

#### Unrefereed Book Chapters

- F. T. Lombardo, **A. L. Pintar**, A. Possolo, E. Simiu, and D. Yeo (2013) Meteorological Extremes. *Encyclopedia of Environmetrics*, **4**.

#### Unrefereed Conference Proceedings

- Nien Fan Zhang and **Adam L. Pintar** (2014) SPC Charts for Detecting Shifts in Variance with Autocorrelated Data, American Statistical Association, 2013, Proceedings of the Joint Statistical Meetings, Section on Quality and Productivity, 467 - 476.

- Z. H. Levine, H. H. Chen-Mayer, **A. L. Pintar**, and D. S. Sawyer (2013) Standard Reference Materials for Medical CT. *Imaging and Applied Optics*, OSA Technical Digest (online) (Optical Society of America), paper QW1G.3. <http://www.opticsinfobase.org/abstract.cfm?URI=QMI-2013-QW1G.3>.
- **A. L. Pintar**, A. Possolo, and N. F. Zhang (2013) Statistical Methods for Change-point Detection in Surface Temperature Records. *TEMPERATURE: ITS MEASUREMENT AND CONTROL IN SCIENCE AND INDUSTRY, VOLUME 8: Proceedings of the Ninth International Temperature Symposium*, **1552**, AIP Publishing.
- **A. L. Pintar**, A. Possolo, and N. F. Zhang (2013) Regional Homogenization of Surface Temperature Records Using Robust Statistical Methods. *TEMPERATURE: ITS MEASUREMENT AND CONTROL IN SCIENCE AND INDUSTRY, VOLUME 8: Proceedings of the Ninth International Temperature Symposium*, **1552**, AIP Publishing.
- **A. L. Pintar** and A. A. Jayawardhana (2006) A Simulation Study to Test the Accuracy of Using Maximum Likelihood Predictive Density in Quality Control Assuming the Power Rule Model and the Exponential Distribution, American Statistical Association, 2005, Proceedings of the Joint Statistical Meetings, Section on Quality and Productivity, 1848 - 1853.

#### Washington Editorial Review Board Approved Manuscripts

- **A. L. Pintar**, E. Simiu, M. Levitan, and F. T. Lombardo, Maps of Non-Hurricane Non-Tornadic Wind Speeds with Specified Mean Recurrence Intervals for the Contiguous United States Using a Two-Dimensional Poisson Process Extreme Value Model and Local Regression

## Presentations

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#### Invited

- **A. L. Pintar** and E. Simiu, Development of Extreme Non- Hurricane Wind Speed Maps for Structural Design from Meteorological Station Measurements in the Contiguous United States, at the Fall Technical Conference on October 3, 2014 in Richmond, Virginia.
- **A. L. Pintar** and E. Simiu, A Two Stage Approach to Mapping Extreme Non-hurricane Wind Speed over the Contiguous United States, at the European network of business and industrial statisticians conference on September 23, 2014 in Linz, Austria.

- **A. L. Pintar** and D. Wang, Errors in Variables and Ridge Regression for Structural Data from Synthesized Amorphous Calcium Phosphate, at the Joint Research Conference on June 26, 2014 in Seattle, WA.
- **A. L. Pintar**, B. Toman, D. Leber, and W. Guthrie, Bayesian Adaptive Designs for Testing System Effectiveness, at the Quality and Productivity Research Conference on June 5, 2013 in Niskayuna, New York.
- **A. L. Pintar**, T. J. Robinson, C. M. Anderson-Cook, and M. S. Hamada, A Bayesian Approach to the Analysis of Split-Plot Product Arrays and Prediction in Robust Parameter Design, at the Joint Statistical Meetings on August 1, 2012 in San Diego, California.
- **A. L. Pintar**, A. Possolo, and N. F. Zhang, Statistical Methods for Change-Point Detection in Surface Temperature Records, at the International Temperature Symposium 9 on March 21, 2012 in Anaheim, California.
- **Adam L. Pintar**, Mapping Return Values of Extreme Wind Gusts, at the Conference on Risk Assessment on October 13, 2011 in College Park, MD.
- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu, Bayesian Model Selection for Prediction of Future Reliability Using a Generalized Linear Model, at the Quality and Productivity Research Conference during June, 2011 in Roanoke, Virginia.
- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu, Prediction Emphasized Covariate Selection for Generalized Linear Models, at the Fall Technical Conference during October, 2009 in Indianapolis, IN.
- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu, Mean Squared Error in Model Selection, at the Quality and Productivity Research Conference during June, 2009 in Yorktown Heights, NY.

### Seminar

- **A. L. Pintar**, Maps of Extreme Wind Speeds, at NIST during April, 2014 in Gaithersburg, MD.
- **A. L. Pintar** and B. Toman, An R Package for Bayesian Group Sequential Design for Binomial Experiments, at NIST during May, 2013 in Gaithersburg, MD.

### Contributed

- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu, Selecting Linear Models Under the Bayesian Paradigm With Focus on Good Prediction Over a User-Specified Distribution on the Covariate Space, at the Joint Statistical Meetings during August, 2011 in Miami Beach, FL.
- **A. L. Pintar**, C. M. Anderson-Cook, and H. Wu, Prediction-Based Model Selection, at the Joint Statistical Meetings during August, 2009 in Washington DC.

- **A. L. Pintar** and R. Maitra (May 2007), Ordering the Works of Plato, at the Spring Research Conference during May, 2007 in Ames, IA.
- **A. L. Pintar** and A. A. Jayawardhana (August 2005), A Simulation Study to Test the Accuracy of Using Maximum Likelihood Predictive Density in Quality Control Assuming the Power Rule Model and the Exponential Distribution, at the Joint Statistical Meetings during August, 2005 in Minneapolis, MN.

### Contributed Posters

- **A. L. Pintar** and F. T. Lombardo, Mapping Return Values of Extreme Wind Speeds, during the Information Technology Laboratory (ITL) Science Day during April, 2012 at NIST in Gaithersburg, MD.

## Standard Reference Materials

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Certification of the chemical properties and physical characteristics of Standard Reference Materials (SRMs) to be used for measurement assurance and calibration is an important part of NIST's mission. The certified or reference values included on an SRM certificate establish the official values of the relevant quantities (e.g. the pH or the mass fraction of sulfur in a material) on the basis of an extensive and often complex experiment designed and analyzed at NIST by a statistician in collaboration with a team of highly-qualified scientists or engineers.

See this website for more information about SRMs <http://www.nist.gov/srm/index.cfm>.

A NIST Mathematical Statistician must write an accompanying report of analysis for each SRM that they work on, for internal use only, and to be reviewed and approved by the Chief Statistician of the Statistical Engineering Division.

- **SRM C2415a** Battery Lead (UNS 52770)
- **SRM 131h** Refined Cast Iron.
- **SRM 610** Trace Elements in Glass.
- **SRM 612** Trace Elements in Glass.
- **SRM 1453** Thermal Conductivity – Expanded Polystyrene Board
- **SRM 1580** Organics in Shale Oil
- **SRM 1582** Petroleum Crude Oil
- **SRM 1584** Priority Pollutant Phenols in Methanol
- **SRM 1633c** Trace Elements in Coal Fly Ash
- **SRM 1635a** Trace Elements in Coal (Subbituminous)

- **SRM 1957** Organic Contaminants in Non-Fortified Human Serum
- **SRM 1974c** Organics in Mussel Tissue (*Mytilus edulis*)
- **SRM 1991** Mixed Coal Tar/Petroleum Extract in Methylene Chloride
- **SRM 2087** Dimensional Standard for Medical Computed Tomography
- **SRM 2088** Density Standard for Medical Computed Tomography
- **SRM 2453a** Hydrogen in Titanium Alloy (Nominal Mass Fraction 125 milligrams per kilogram H)
- **SRM 2682c** Subbituminous Coal (Nominal Mass Fraction 0.5% Sulfur)
- **SRM 2684c** Bituminous Coal (Nominal Mass Fraction 3% Sulfur)
- **SRM 2685c** Bituminous Coal (Nominal Mass Fraction 5% Sulfur)
- **SRM 2779** Gulf of Mexico Crude Oil
- **SRM 2786** Fine Particulate Matter (less than 4 micrometers)
- **SRM 2787** Fine Particulate Matter (less than 10 micrometers)

## Teaching

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### University

- **STAT 543 Probability and Statistics II** *Teaching Assistant*, Iowa State University (Spring 09).
- **STAT 542 Theory of Probability and Statistics** *Teaching Assistant*, Iowa State University (Fall 07, Fall 08).
- **STAT 104 Introduction to Statistics** *Course Instructor*, Iowa State University (Spring 07, Fall 06, Summer 06, Spring 06, Fall 05, Summer 05).
- **STAT 101 Principles of Statistics** *Lab Instructor and Grader*, Iowa State University (Spring 05).
- **MATH 110 College Algebra with Review** *Course Instructor*, Pittsburg State University (Fall 04).
- **MATH 143 Elementary Statistics** *Course Instructor*, Pittsburg State University (Spring 04).
- **MATH 113 College Algebra** *Course Instructor*, Pittsburg State University (Fall 03, Spring 04).

### Short Courses

- **A. L. Pintar**, B. Toman, and D. Leber, Bayesian Methods, NIST, Gaithersburg, MD, 2012.



## Educational Outreach

- Howard County Math Festival, presentation on variability by collecting reaction time data interactively , November, 2014 with Steve Lund and Hari Iyer.
- Howard County Math Festival, presentation on the Monte Hall problem, January, 2014 with Fern Hunt.
- Students Active In Leadership (SAIL) retreat volunteer, October 2008.

## Professional Service

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### Editorial

- Associate Editor for the Journal of Statistics Education (5 reviews coordinated)

### Review and Referee

- More than 30 reviews
  - Technometrics
  - Journal of Statistical Inference and Planning
  - Journal of Statistics Education
  - Applied Stochastic Models in Business and Industry
  - Transactions on Mathematical Software
  - Journal of Research of NIST
  - Environmental Science and Technology
  - Kansas State Applied Statistics in Agriculture Conference Proceedings
  - Washington Editorial Review Board

### American Society for Quality

- **Chair** of the American Society for Quality Statistics Division, January, 2015 - present.
- **Chair Elect** of the American Society for Quality Statistics Division, January, 2014 - December, 2014.
- **Treasurer** of the American Society for Quality Statistics Division, July, 2011 - December, 2013.

## Institutional Service

- Backup evacuation coordinator for the Statistical Engineering Division of NIST, 2015 - present.
- Judge for the Sigma-Xi poster contest in 2011 and 2014. The contest is held among NIST postdoctoral researchers.
- Member of the NIST ITL awards committee in 2013.
- Student member of the Student Programs Advisory Committee at Los Alamos National Laboratory, May, 2009 - August, 2009.
- Student member of the department library committee in the Department of Statistics at Iowa State University, 2009 - 2010.
- Student member of the department social committee in the Department of Statistics at Iowa State University, 2008 - 2009.
- Recycling coordinator for the Iowa STATERS, 2007 - 2008.

## Software

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### Released

- **R Package: mewAvg** A Fixed Memory Moving Expanding Window Average <https://cran.r-project.org/web/packages/mewAvg/index.html>

### Developed but not Released

- **R Package: WindMap** Maps of Return Values for Extreme Winds Over the Contiguous United States
  - This software was developed in conjunction with a project that had the goal of proposing maps of extreme wind speeds to revise the maps in the 2010 edition of the ASCE/SEI 7 publication. Numeric versions of the maps were developed in a separate analysis. The software displays and extracts values from the numeric versions
- **R Package: AdaptiveDesign** Calculate Bayesian Adaptive Experiment Designs
  - This software is for calculating a Bayesian adaptive experiment design to test the hypotheses  $H_0: p \leq p_0$  versus  $H_a: p > p_0$ . The output is a tree describing the experiment. To view the tree in a nice form, `graphviz` is also needed.

## Computing Environments and Languages

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### **Substantial Experience**

R, C, Python, Jags, WinBugs, Stan, LaTeX

### **Some Experience**

SAS, JMP, Minitab, Bash, Fortran, C++