

Florentina Bunea

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Education

- Ph.D. in Statistics, University of Washington, Seattle, 2000.
Dissertation: A Model Selection Approach to Partially Linear Regression.
Advisor: Jon A. Wellner.
- M.S. in Mathematics, University of Bucharest, Romania, 1991.
- B.S. in Mathematics, University of Bucharest, Romania, 1989.

Employment

- **Sabbatical leave Jan - August 2008:**
 - Invited Visiting Scholar: The Johns Hopkins School of Public Health, Department of Biostatistics, Jan-Feb 2008.
 - Invited Visiting Fellow: The Newton Institute, Cambridge University, UK, April/June 2008.
- **Associate Professor:** Florida State University, Department of Statistics. August 2006-
- **Assistant Professor:** Florida State University, Department of Statistics. August 2000 - 2006.
- **Research Assistant :** University of Washington, Department of Statistics and the National Research Center for Statistics and the Environment. October 1997 - 2000.
- **Teaching Assistant :** University of Washington, Department of Statistics. October 1995 - September 1997.
- **Assistant Professor:** University "Politehnica" Bucharest, Department of Mathematics (Romania). September 1991 - September 1995.

Research Interests

- Nonparametric techniques in curve aggregation and classification. Online prediction algorithms. Adaptation to unknown sparsity in high dimensions.
- The application and development of empirical processes techniques for model selection type estimators, in semiparametric and nonparametric models. Dimension reduction methods.

- Computationally efficient model selection and classification procedures. Applications to Neuroscience, Genetics and Medicine.
- Integrating EEG and fMRI information in mental health studies.
- Connections between algebraic geometry and MCMC sampling schemes on spaces of random matrices.

Editorship (current)

- Associate Editor: The Annals of Statistics.
- Associate Editor: The Electronic Journal of Statistics, IMS.
- Associate Editor: The International Journal of Biostatistics, Berkeley Press.

Grants

- National Science Foundation-Directorate of Mathematical Sciences (NSF-DMS) award, co-PI, Grant number 0706829: Sparsity oracle inequalities via l_1 regularization in nonparametric models, 2007 - 2009, 250 K.
- National Science Foundation-Directorate of Mathematical Sciences (NSF-DMS) award, PI, Grant number 0406049: Curve aggregation and classification, 2004 - 2007, 150K.

Publication Record

Published and In Press Articles

(In inverse chronological order)

1. Florentina Bunea *Honest variable selection in linear and logistic regression models via ℓ_1 and $\ell_1 + \ell_2$ penalization*, Electronic Journal of Statistics, Vol 2, pp 1153 - 1194, (2008).
2. Florentina Bunea and Andrew Nobel *Online prediction algorithms for aggregation of arbitrary estimators of a conditional mean*. IEEE Transactions on Information Theory, Vol 54 (4), pp 1725 - 1735 (2008).
3. Florentina Bunea *Consistent selection via the Lasso for high dimensional approximating models*. IMS Lecture Notes-Monograph Series, Vol 123, pp. 123 - 137, (2008).
4. Florentina Bunea, Alexandre Tsybakov and Marten Wegkamp *Sparsity oracle inequalities for the lasso*. Electronic Journal of Statistics, pp. 169 - 194. (2007)
5. Florentina Bunea, Alexandre Tsybakov and Marten Wegkamp *Sparse density estimation with l_1 penalties*. Annual Conference on Learning Theory, Lecture Notes in Artificial Intelligence, pp. 530 - 544, Springer (2007).

6. Florentina Bunea, Alexandre Tsybakov and Marten Wegkamp *Aggregation for Gaussian regression*. Annals of Statistics, Vol 35, 1674 - 1697 (2007).
7. Florentina Bunea, Alexandre Tsybakov and Marten Wegkamp *Aggregation and sparsity via l_1 penalized least squares*. Lecture Notes in Artificial Intelligence, Springer, pp. 379 - 391. (2006).
8. Florentina Bunea, Marten Wegkamp and Anna Auguste *Consistent covariate selection in high dimensional regression via multiple testing*. Journal of Statistical Planning and Inference, Elsevier, Vol 136, pp 4349-4364 (2006).
9. Florentina Bunea, Hernando Ombao and Anna Auguste *Minimax adaptive spectral estimation from an ensemble of signals*. IEEE Transactions on Signal Processing, Vol. 54, pp. 2865 - 2874 (2006).
10. Gerard Biau, Florentina Bunea and Marten Wegkamp *Function Classification in Hilbert Spaces*. IEEE Transactions on Information Theory, Vol. 51, pp 2163 - 2172 (2005).
11. Florentina Bunea and Ian McKeague *Covariate selection for semiparametric hazard function regression models*. The Journal of Multivariate Analysis, Vol. 92, pp. 186 - 204 (2005).
12. Florentina Bunea *Consistent covariate selection and postmodel selection inference in semiparametric regression*. The Annals of Statistics, Vol. 32, No. 3, pp. 898 - 927 (2004).
13. Florentina Bunea and Marten Wegkamp *Two-stage model selection procedures in partially linear regression*. The Canadian Journal of Statistics, Vol. 32, pp. 105 - 118 (2004).
14. Florentina Bunea and Marten Wegkamp. *A Note on Penalized Minimum Distance Estimation in Nonparametric Regression*. The Canadian Journal of Statistics, Vol. 31, No 3, pp. 267-274 (2003).
15. Florentina Bunea and Julian Besag *Markov Chain Monte Carlo in $I \times J \times K$ contingency tables*, Fields Institute Communications, AMS, Providence, Rhode Island. Vol. 26, pp. 25 - 36 (2000).
16. Florentina Bunea *Geometrical restrictions in self deconvolution*, The Annals of University of Bucharest, Mathematics and Informatics Series, Vol. 44, pp. 41-50 (1995).

Technical reports

- Florentina Bunea, Alexandre Tsybakov and Marten Wegkamp (2008). *Spades and mixture models*. (Submitted); FSU Technical Report M990.
- Florentina Bunea and Adrian Barbu (2008). *Regularized likelihood-based inference and variable selection in case control studies*; FSU Technical Report M992.
- Florentina Bunea, Marten Wegkamp and Andrada Ivanescu (2008). *Adaptive inference for functional data* . FSU Technical Report M989.

Honors/Awards

- The Isaac Newton Institute Fellowship, 2008.
- FSU Teaching Award nominations 2003, 2005, 2007.
- The Centre National de la Recherche Scientifique (CNRS) Award in Statistics for young researchers, 2001 (CNRS is the French equivalent of the National Science Foundation.)
- The FSU First Year Assistant Professor Award, 2001.

Student supervision

Former Ph. D. students

Anna Auguste (2006), Andrada Ivanescu (jointly with M. Wegkamp), fall 2008 .

Current Ph.D. Students in Statistics, major professor

- Shuva Gupta (expected graduation date: spring 2009).

MS committee member in Statistics

Andrada Ivanescu, Kevin Krieger, Nicole Robichaux, Carl Siebert, Min Tian, Deniece Williams.

Ph. D. committee member outside the department

At Florida State University

Veon Murdock Stewart, Dept. of Math. Education (2005).

Salih Binici, Department of Educational Psychology and Learning Systems. (2006)

International

Nicolas Verzelen, Université de Paris-Sud, France, Pascal Massart Advisor. (2008)

Service

Service to the academic community at large

- Chair of the organizing committee of the international conference *From Probability to Statistics and Back: High-Dimensional Models and Processes*, to take place in Seattle, August 2010.
- NSF- DMS Panel member, January 2008, 2009.
- Invited chair and organizer of the invited IMS session “Advances in Statistical Aggregation” at the Joint Statistical Meeting, Salt Lake City, August 2007.
- Invited chair and organizer of the invited IMS session “Semiparametric Inference in Practice” at the Joint Statistical Meeting, Seattle, August 2006.
- Invited chair and organizer of the invited IMS session “Aggregation in non-parametric models” at the Joint Statistical Meeting in Minneapolis, August 2005.
- Chair of the organizing committee of the Nonparametrics Research International Conference held in Tallahassee, FL, Jan 17 - 18, 2003.

Service to the academic community at FSU

- Member of the FSU Council on Research and Creativity (2006 - 2008).
- Member of the advisory council of the Women in Mathematics, Science and Engineering Program (since 2001).
- Faculty senator (2003 - 2006).
- Organizer of the Department of Statistics’ colloquium series (2001 - 2003).

Refereeing

- Grant referee for the National Science Foundation - DMS (the directorate for mathematical sciences).
- Article referee for, among others, the *Annals of Statistics*, *Bernoulli*, *Biometrika*, the *Journal of the American Statistical Association*, *JRSS-B*, the *IEEE Transactions in Information Theory and Signal Processing*, the *New Zealand Journal of Statistics*, the *Journal of Statistical Planning and Inference*, the *Journal of Nonparametrics*, the *Canadian Journal of Statistics*, *Journal of Machine Learning*.

Invitations

- Invited Visiting Scholar, The John Hopkins School of Public Health, Jan/Feb 2008.
- Invited Visiting Fellow, Newton Institute, Cambridge University, UK, April/June 2008.
- Invited Research Professor, Université de Paris VI (Jussieu), France, May 2003. (Host: Alexandre Tsybakov.)

- Invited Researcher, L'Institut Henri Poincaré, Paris, France, April/July 2001. (Host: Lucien Birgé.)
- Invited Researcher, Université Rennes II, France, July 2001. (Host: Marian Hristache.)

Presentations

Invited conference and workshop talks

International

- Understanding the New Statistics: Expanding Core Statistical Theory, Banff, Canada, September 2008. *Honest variable selection.*
- The Isaac Newton Institute, Cambridge University, UK, Programme on Statistical Theory and Methods for Complex, High-Dimensional Data, May 2008. *Non-asymptotic variable selection.*
- Statistical and Probabilistic Methods in Model Selection, The Mathematical Institute at Oberwolfach, Germany, October 2005. *On-line prediction algorithms in aggregation.*
- International Workshop on Applied Probability, Greece, March 2004. *One and multiple-sample aggregation in nonparametric regression models.*
- International conference on current advances and trends in nonparametric statistics, Crete, July 2002. *Post model selection inference in semiparametric regression models.*

National/International

- International Workshop on Sparsity in High Dimensional Statistics and Learning Theory, March 2008, Georgia Institute of Technology, Atlanta. *On ℓ_1 regularization in functional data and binary response regression models.*
- The Joint Statistical Meeting, the Institute of Mathematical Statistics section, Salt Lake City, August 2007. *Sparse oracle inequalities for the Lasso.*
- The Annual Conference on Learning Theory (COLT), San Diego, June 2007. *Identifying components in sparse mixtures: the Spades estimator.*
- The Annual Conference on Learning Theory (COLT), Pittsburgh, June 2006.
- Kickoff Workshop of the SAMSI program on High Dimensional Inference and Random Matrices, September 2006.
- The Joint Statistical Meeting, the Institute of Mathematical Statistics Section, Seattle, August 2006.
- The Joint Statistical Meeting, the Institute of Mathematical Statistics section, Minneapolis, August 2005. *Aggregation for regression learning.*
- New Researchers Conference, Davis, CA, July 2003. *Consistent model selection via the FDR procedure.*
- 1999 SIAM Annual Meeting, Atlanta. *MCMC for multi-dimensional contingency tables.*

Regional/Local

- SRCOS/ASA Summer Research Conference, Virginia Tech, June 2004. *Oracle inequalities in aggregation.*
- Nonparametrics Research Conference, Tallahassee, FL, January 2003. *The consistency of the FDR procedure with applications to semiparametric models.*

Contributed conference talks (all international)

- The 67th Annual Meeting of the Institute of Mathematical Statistics, Barcelona, Spain, July 2004. *Oracle inequalities in aggregation.*
- The 65th annual meeting of the Institute of Mathematical Statistics, Banff, Canada, July, 2002. *On the compatibility of minimax adaptive estimation and consistent subset selection via two stage procedures.*
- The Fifth World Congress of the Bernoulli Society for Probability and Mathematical Statistics, Guanajuato, Mexico, May 2000. *A model selection approach to partially linear regression.*

Invited Individual Seminars

- *Canada:* University of Toronto (2002), University of British Columbia (2000).
- *France:* Université de Paris VI (Paris, 2003), ENSAI (Rennes, 2001), L'Institut Henri Poincaré (Paris, 2001).
- *United Kingdom:* Bath University (2001), Newton Institute, Programme on Statistical Theory and Methods for Complex High-dimensional Data, Cambridge (2008).
- *Switzerland:* The Swiss Institute of Technology, Zurich (2008).
- *USA*
2008: University of Chicago.
2007: Carnegie Mellon University, Johns Hopkins University, University of Minnesota, Rutgers University.
2006: Texas A & M University, North Carolina State University.
2005: University of Georgia, University of Illinois at Urbana.
2004: The Pennsylvania State University, Duke University.
2002: University of Florida. 2000/2001: Yale University, University of Pennsylvania, Stanford University.

Professional Affiliations

- Member of the Institute of Mathematical Statistics.

Courses taught at FSU

- Statistics through examples (STA 1013)
- Introduction to Probability (STA 4442/5440)

- Mathematical Statistics (STA 4322/5325)
- Probability and Measure (STA 5446)
- Probability Theory (STA 5447)
- Advanced Topics in Probability and Statistics: Model Selection (STA 6468)
- Advanced Topics in Probability and Statistics: Semiparametric models and empirical processes (STA 6468)
- Advanced Topics in Probability and Statistics: Aggregation in non-parametric models (STA 6468)
- Advanced Topics in Probability and Statistics: Model selection and aggregation in high dimensions (STA 6468)