

## CURRICULUM VITAE

### ANINDYA ROY

Department of Mathematics and Statistics  
University of Maryland, Baltimore County  
1000 Hilltop Circle  
Baltimore MD 20705  
Phone: (410)455-2435  
email: anindya@math.umbc.edu  
website: www.math.umbc.edu/~anindya/

### Education

Ph.D.	1999	Iowa State University	Statistics
M.Stat.	1993	Indian Statistical Institute	Statistics
B.Stat.	1991	Indian Statistical Institute	Statistics

### Experience in Higher Education

July 2004 –	University of Illinois at Chicago	Member	Center for Health Statistics
July 2005 –	University of Maryland, Baltimore County	Associate Professor	Statistics
Aug 1999 – June 2005	University of Maryland, Baltimore County	Assistant Professor	Statistics
Aug 1993 – July 1999	Iowa State University	Grad. Research Asst.	Statistics

### Experience in other than Higher Education:

Summer 1997, Freddie Mac Inc., Summer Intern, Resale House Price Index Group

### Honors received

1996: Snedecor Award for outstanding PhD candidate, Iowa State University (ISU)  
1994: Holy & Beth Fryer Award for outstanding academic performance, ISU  
1993: Premium for Academic Excellence Award (PACE), ISU

### Research Support and/or Fellowships

2005-2008	\$430,000	<i>Beyond Spots and Peaks: Integrated Analytical Methods in Proteomics</i> PI of UMBC subcontract. (Total \$750,000). NSF/NIH joint solicitation in mathematical biology
2004-2006	\$190,000	<i>REU: Summer Program in Computational Biology</i>

		Co-PI (PI: Jon Bell). National Science Foundation grant.
2003-04	\$ 16000	<i>Statistical Analysis of 2-D Gel Images in Proteomics</i> DRIF fund, UMBC, PI
2002-03	\$ 22000	<i>Statistical Analysis of Air-Traffic Data</i> Metron Aviation Inc., VA. PI
2002	\$ 12000	<i>Statistical Issues in Proteomics</i> Bioinform. Research Center, UMBC. (PI F.Seillier-Moiseiwitsch)
2001	\$ 7500	<i>Tobacco Data Analysis</i> Harford County Government, MD, PI
2001	\$ 8000	<i>Mixed model inference with applications to Army test and evaluation</i> U.S. Army, Co-investigator. (PI T. Mathew)
2001	\$ 4300	<i>Design-Directed Statistical Methodology for Phase I Clinical Trials in Cancer</i> , NIH, Co-investigator. (PI W. F. Rosenberger)
2001	\$ 2000	<i>High Dimensional Financial Data: Modeling and Estimation</i> Summer Faculty Fellowship, UMBC
2000	\$ 4000	<i>Problems in Statistical Finance: Modeling High Frequency Data</i> Summer Faculty Fellowship, UMBC
1999	\$ 8000	<i>Forecasting House Price Index</i> ; Freddie Mac. Inc, VA; PI Summer Faculty Fellowship, UMBC
2005-2008	\$984,892	(pending), PI, UMBC subcontract, \$550,000. <i>Proteoinformatics: Computational Tools for Proteomics</i> NIH R21

### Graduate Student Thesis Under My Supervision

#### Ph.D. Students

Yaming Hang	September 2004	<i>Statistical Analysis of Two Dimensional Gel Electrophoresis Images</i>
Ravi Siddani	Expected 2006	<i>Spatio-Temporal modeling of Rain Rate</i>
Joseph Warfield	Expected 2006	<i>Semiparametric Sequential Optimal Design of Dose-Response Curve</i>

**Master's Students**

Sibabrata Banerjee	August 2003	<i>Finite Sample Efficiency of Local Linear Estimation in EXPAR Models</i>
George Robertson	May 2004	<i>Forecasting Asset Class Returns With Independent Component Analysis</i>

**Undergraduate Student**

Eric Valentine	May 2005	Marc-U*Star project advisor, (jointly with Dr. Muruhan Rathinam)
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**Other Graduate/Undergraduate Students****Ph.D. Students**

Hongmei Ni, (CSEE)	May 2001	reader
Ranjan K. Paul (STAT)	August 2001	member
Vince D. Calhoun,(CSEE)	May 2002	reader
Devasis Bassu (MATH)	May 2002	reader
Rafaela Guidi (STAT)	August 2002	reader
YanYan Zhou (STAT)	August 2002	reader
Anna Osmoukhina (STAT)	May 2003	reader
Gitanjali Paul (STAT)	August 2004	reader
Yevgen Tymofyeyev (STAT)	May 2005	member
Minglei Liu (STAT)	May 2005	member
Inuit Bebu (STAT)	Expected 2006	reader
Yanping Wu (STAT)	Expected 2006	member
Li Cao(STAT)	Expected 2006	member

**Master's Students**

Kerry-Ann Kelly, (Stat.)	August 2002	member
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**Publications****Peer-Reviewed****Articles in Refereed Journals**

1. Zhou, Y. and Roy, A. (2005). Effect of Tapering on Accuracy of Forecasts Made With Stable Estimators of Vector Autoregressive Processes. *International Journal of Forecasting*, in press.
2. Roy, A. and Mathew, T. (2005). A Generalized Confidence Limit for the Reliability Function of the Two-Parameter Exponential Distribution. *J. Statist. Plan. Inf.*, 128, 509–517.
3. Falk, B. and Roy, A. (2005). Forecasting Using the Trend Model with Autoregressive Errors. *International Journal of Forecasting*, 21, 291–302.

4. Penny, S., Hoffman, R., Krozel, J. and Roy, A. (2005). Classification of Days in the National Airspace System Using Cluster Analysis. *Air Traffic Control Quarterly*, 13, 25–43.
5. Roy, A., Falk, B. and Fuller, W. A. (2004). Testing for Trend in Presence of Autoregressive Error, *J. Amer. Statist. Assoc.*, 99, 1082–1091.
6. Choudhuri, N., Ghosal, S. and Roy, A. (2004). Bayesian Estimation of the Spectral Density of a Time Series, *J. Amer. Statist. Assoc.*, 99, 1050–1059.
7. Choudhuri, N., Ghosal, S. and Roy, A. (2004). Contiguity of the Whittle Measure for a Gaussian Time Series. *Biometrika*, 91, 211–218.
8. Roy, A., Seillier-Moiseiwitsch, F., Lee, K., Hang, Y., Marten, M. R., and Raman, B. (2003). Analyzing Two-Dimensional Gel Images. *Chance*, 16, 13–18. (Special peer-reviewed issue on Proteomics).
9. Roy, A. and Seidman, T. (2003). On Consistency of Regression Estimators in a Simple Linear Regression. *Cal. Statist. Assoc. Bull.*, 53, 261–64.
10. Pegg, M., Pierce, C. and Roy, A. (2003). Hydrological Alteration Along the Missouri River Basin: A Time Series Approach. *Aquatic Sciences*, 65, 63–72.
11. Bhargava, S., Nandakumar, M. P., Roy, A., Wenger, K. S. and Marten, M. R. (2003). Pulse Feeding of During Fed-batch Fungal Fermentation Leads to Reduced Viscosity Without Detrimentially Affecting Protein Expression. *Biotechnology and Bioengineering*, 81, 341–347.
12. Roy, A. and Fuller, W. A. (2001). Estimation for Autoregressive Time Series With a Root Near 1. *Journal of Business and Economic Statistics*, 19, 482–93.
13. Sengupta, D., Bhimasankaram, P., Bhattacharya, A. and Roy, A. (1992) A Post-Script to “Regression Post-Mortem”. *Journal of the Indian Society of Agricultural Statistics*, 44, 286–91.

#### **Refereed Conference Proceedings**

14. Hoffman, R., Roth, K., and Roy, A. (2003). A Cluster Analysis to Classify Days in the National Airspace System. *Proceedings of AIAA Guidance, Navigation, and Control Conf.* In press.

#### **Refereed Book Chapters**

15. Choudhuri, N., Ghosal, S. and Roy, A. (2004). Bayesian Methods for Function Estimation. *Handbook of Statistics* (D. Dey, ed.). Marcel Dekker, New York. In press.

### Non Peer-Reviewed

#### Articles

16. Roy, A. "Collinearity and Diagnostics in the Linear Model: Some New Results", Technical Report No. 12/92, Indian Statistical Institute, Calcutta, Stat-Math Division, 1992.

#### Conference Proceedings

17. Roy, A. and Fuller, W. A. (1998). Estimator for the First Order Autoregressive Process With Linear Trend. *ASA Proceedings of the Business and Economic Statistics Section*, 245–248.
18. Roy, A. and Fuller, W. A. (1997). A Likelihood-Based Estimator for the First Order Vector Autoregressive Process. *ASA Proceedings of the Business and Economic Statistics Section*, 163–166.
19. Roy, A. and Fuller, W. A. (1996). Estimators for the First Order Autoregressive Process. *ASA Proceedings of the Business and Economic Statistics Section*, 110-113.

### Works Submitted or In Preparation

#### Submitted for publication

20. Roy, A., Bhaumik, D., Gibbons, R., Lazar, N., Sweeney, J., Aryal, A., Kapur, Kush and Patterson, D. (2005). Estimation and classification of BOLD responses over multiple trials.
21. Bhaumik, D., Roy, A., Lazar, N., Gibbons, R., Sweeney, J., Aryal, A., Kapur, Kush and Patterson, D. (2005). Hypothesis Testing, Power and Sample Size Determination for Between Group Comparisons in fMRI Experiments.
22. Roy, A., Ghosal, Subhashis and Rosenberger, W. F. (2005). Convergence Properties of Sequential Bayesian  $D$ -Optimal Designs with Application to Phase I Clinical Trials.
23. Choudhuri, N., Ghosal, S. and Roy, A. (2005). Nonparametric Binary Regression Using a Gaussian Process Prior.
24. Ghosal, S and Roy, A. (2005) Posterior Consistency of Gaussian Process Prior for Nonparametric Binary Regression.
25. Potra, F., liu, X., Seillier-Moiseiwitsch, F., Roy, A., Hang, Y., Marten, Y. and Raman, B. (2004). Protein Image Alignment via Global and Segmented Local Forward Affine Transformations.

**Completed, not yet submitted for publication**

26. Hang, Y., Roy, A., Seillier-Moiseiwitsch, F., Marten, M. R. and Raman, B. (2005). A Gradient Based Spot Detection Method for 2D Gel Electrophoresis.
27. Roy, A., Fuller, W. A. and Zhou, Y. (2005). A Likelihood-Based Estimator for Vector Autoregressive Processes.

**In preparation**

28. Hang, Y., Roy, A. and Seillier-Moiseiwitsch, F. (2005). Statistical Analysis of Differential Protein Expression in 2D Gel Electrophoresis.
29. Hang, Y., Roy, A. and Seillier-Moiseiwitsch, F. (2005). Repeatability and Reproducibility in Two Dimensional Gel Electrophoresis Images.
30. Seillier-Moiseiwitsch, F., Roy, A. and Hang, Y. (2005). Integrated Analysis of 2D Gel images: Statistical and Mathematical Issues.
31. Robertson, G. and Roy, A. (2005). Independent Component Analysis of Asset Classes.
32. Robertson, G. and Roy, A. (2005). Alternatives to Mean-Variance Optimization for Nonstationary, Non-Gaussian Components in Portfolio Analysis.

**Presentations:****Conference Presentations****Special Invited Presentation**

1. Statistical Perspectives of Two-dimensional Gel Analysis. Introductory Overview Lecture on Proteomics. Joint Statistical Meetings, Toronto, August, 2004.

**Other Conference Presentations**

2. William F. Rosenberger and Anindya Roy. Bayesian Optimal Designs for Phase I Clinical Trials. Joint Statistical Meetings, San Francisco, August, 2003.
3. On Estimation of the Spectral Density Based on the Whittle likelihood for Linear Short Memory Gaussian Process. Joint Statistical Meetings, New York, August, 2002.
4. Nonparametric Bayesian Estimation of Spectral Densities Using Bernstein Polynomial Prior. Joint Statistical Meetings, Atlanta, August, 2001.
5. Improved median unbiased estimation for the first order autoregressive process in the presence of linear trend. Joint Statistical Meetings, Dallas, August, 1998.

6. Estimation for autoregressive processes with a root near one. NBER/NSF Time Series Conference and Centennial of the Graduate School of Business, University of Chicago, Chicago. September, 1998.
7. A likelihood based estimator for the first order vector autoregressive process. Joint Statistical Meetings, Anaheim, August, 1997.
8. Estimation for the First Order Vector Autoregressive Process. Joint Statistical Meetings, Chicago, August, 1996.
9. Estimator for the first order vector autoregressive process, Joint spring meetings of the Iowa Chapters of the American Statistical Association, Mt. Vernon, Iowa, April, 1996.

### **Other Presentations**

10. Introduction to Statistical Two-dimensional Gel Analysis. Summer REU in Computational Biology workshop, UMBC, June, 2005.
11. Bayesian Nonparametric Binary Regression Using a Gaussian Process Prior. Applied Math Colloquium, Johns Hopkins University, Baltimore, April 2005.
12. Bayesian Nonparametric Binary Regression Using a Gaussian Process Prior. Statistics seminar, National Cancer Institute, NIH, MD, March 2005.
13. Nonparametric Bayesian Estimation of Spectral Densities. Statistics seminar, George Washington University, Washington DC, November, 2003.
14. Nonparametric Bayesian Estimation of Spectral Densities. Statistics seminar, T.J. Watson Research Center, IBM, Yorktown Heights, July, 2003.
15. Nonparametric Bayesian Estimation of Spectral Densities. Statistics seminar, University of Virginia, Charlottesville, February, 2003.
16. Statistical Issues in Proteomics. Seminar series, Bioinformatics Research Center, UMBC, Baltimore, October, 2002.
17. On Estimation of the Spectral Density Based on the Whittle likelihood for Linear Short Memory Gaussian Process . Statistics seminar, New York University, New York, March, 2002.
18. On Estimation of the Spectral Density Based on the Whittle likelihood for Linear Short Memory Gaussian Process . Statistics seminar, American University, Washington DC, February, 2002.
19. A Likelihood-Based Estimator for Vector Autoregressive Processes. Statistics seminar, North Carolina State University, March, 2001.
20. A Likelihood-Based Estimator for Vector Autoregressive Processes. Statistics seminar, University of Maryland, College Park, December, 2000.

21. A Likelihood-Based Estimator for Vector Autoregressive Processes. Statistics seminar, Case Western Reserve University, September, 2000.
22. Estimation of the Trend Model With Autoregressive Errors. Joint Statistical Meetings, Indianapolis, August, 2000.
23. A Likelihood-Based Estimator for Vector Autoregressive Processes. Statistics Colloquium, University of Maryland, Baltimore County, Baltimore, October, 1999.
24. Estimation for autoregressive processes with a root near one. Statistics seminar, University of Colorado, Denver, February, 1999.
25. Estimation for autoregressive processes with a root near one. Statistics seminar, Colorado State University, February, 1999.
26. Time series modeling of Missouri river data. Graduate student seminar, Colorado State University, February, 1999.
27. Estimation for autoregressive processes with a root near one. Statistics seminar, University of Missouri, Rolla, February, 1999.
28. Estimation for autoregressive processes with a root near one. Statistics colloquium, University of Maryland, Baltimore County, Baltimore, February, 1999.
29. Estimation for autoregressive processes with a root near one. Statistics seminar, University of Idaho, Moscow, February, 1999.
30. Estimation for autoregressive processes with a root near one. Statistics seminar, Michigan State University, East Lansing, April, 1998.

## Service

### Departmental Service

Chair, Statistics Colloquium Committee, 1999–2000, 2001–2002, 2003–2006  
Member, Search committee, Fall 2005, Lecturer Search Committee, Spring 2001.  
Member, Graduate Program Committee, 2005  
Member, Undergraduate Program Committee, 2000 – 2001, 2004–2005  
Member, Academic Planning Committee, 2005–2006  
Statistical Representative, Library 1999 – 2000.

### College, University and Community Service

Taught statistical software to student interns from Lansdowne High School. 2000 – 2003.  
Judge, Graduate Student Day, Spring 2001, spring 2004.  
Departmental representative at UMBC visit day.

**Service to the Profession**

Referee for papers in the following journals:

Annals of Statistics, Journal of the American Statistical Association, Journal of Time Series Analysis, Journal of Business and Economic Statistics, Statistics and Probability Letters, Sankhya, Metrika, Statistical Methods, Journal of Statistical Planning and Inference, Journal of Computational and Graphical Statistics, Communications in Statistics

Reviewer of grants for the National Security Agency:

Session chair at the Joint Statistical Meetings, 2000, 2001, 2002, 2003:

Professional membership: American Statistical Association, Institute of Mathematical Sciences.