

CURRICULUM VITAE
OF
ANIL KUMAR GHOSH

ADDRESS FOR CORRESPONDENCE

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PERSONAL DETAILS

Date of Birth : August 27, 1974.
Nationality : Indian.
Gender : Male.
Marital Status : Married.

EDUCATION

Ph.D. from Indian Statistical Institute in 2004.
Master of Statistics (first class with distinction) from Indian Statistical Institute in 1998.
Bachelor of Science with first class honours in statistics from Presidency College, Kolkata in 1996.

ACADEMIC POSITIONS

July, 2017 to date : Professor, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata, India.
July, 2012 -June, 2017 : Associate Professor, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata, India.
May, 2008 -June, 2012 : Assistant Professor, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata, India.
Oct, 2006 -May, 2008 : Assistant Professor, Department of Mathematics and Statistics,
Indian Institute of Technology, Kanpur, India.
Oct, 2005 -Sep, 2006 : Research Associate, Center for Mathematics and its Applications,
Australian National University, Canberra, Australia.
Mar, 2005 -Sep, 2005 : Visiting Scientist, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata,India.
Oct, 2004 -Feb, 2005 : Postdoctoral Research Fellow, Institute of Statistical Science,
Academia Sinica, Taipei, Taiwan.

AWARDS/HONOURS

Prof. C. R. Rao National Award in Statistics 2017.
Indian National Science Academy (INSA) Young Scientist Award in 2009.
Microsoft Young Faculty Award in 2009.
Associate of Indian Academy of Sciences (IAS), 2007-2010.
Elected member of International Statistical Institute (ISI) since 2006.

EDITORIAL SERVICE

- Associate Editor of “STAT” since 2012.
- Associate Editor of “Sankhya, Series A” since 2016.
- Associate Editor of “Statistical Analysis and Data Mining (SAM)” since 2018.

RESEARCH INTERESTS

Nonparametric and Robust Statistics, Statistical Pattern Recognition, Multi-scale Smoothing, Machine Learning, Statistical Computing, Inference for High Dimensional Data.

LIST OF PUBLICATIONS

Journal Publications

1. Ghosh, A. K. and Chaudhuri, P. (2004) Optimal smoothing in kernel discriminant analysis. *Statistica Sinica*, **14(2)**, 457-483.
2. Ghosh, A. K. and Bose, S. (2004) Backfitting neural networks. *Computational Statistics*, **19(2)**, 193-210.
3. Ghosh, A. K. and Chaudhuri, P. (2005) Data depth and distribution free discriminant analysis using separating surfaces. *Bernoulli*, **11(1)**, 1-27.
4. Ghosh, A. K. and Chaudhuri, P. (2005) On maximum depth classifiers. *Scandinavian Journal of Statistics*, **32(2)**, 327-350.
5. Ghosh, A. K., Chaudhuri, P. and Murthy, C. A. (2005) On aggregation and visualization of nearest neighbor classifiers. *IEEE Trans. on Pattern Analysis and Machine Intelligence*, **27(10)**, 1592-1602.
6. Ghosh, A. K., Chaudhuri, P. and Sengupta, D. (2006) Classification using kernel density estimates: multi-scale analysis and visualization. *Technometrics*, **48(1)**, 120-132.
7. Ghosh, A. K. (2006) On optimum choice of k in nearest neighbour classification. *Computational Statistics and Data Analysis*, **50(11)**, 3113-3123.
8. Ghosh, A. K. and Bandyopadhyay, S. (2006) Adaptive smoothing in kernel discriminant analysis. *Journal of Nonparametric Statistics*, **18(2)**, 181-197.
9. Ghosh, A. K., Chaudhuri, P. and Murthy, C. A. (2006) Multi-scale classification using nearest neighbor density estimates. *IEEE Transactions on Systems, Man and Cybernetics, Part B*, **36(5)**, 1139-1148.
10. Ghosh, A. K. (2007) On nearest neighbor classification using adaptive choice of k. *Journal of Computational and Graphical Statistics*, **16(2)**, 482-502.
11. Ghosh, A. K. and Bose, S. (2007) Feature extraction for classification using statistical networks. *International Journal of Pattern Recognition and Artificial Intelligence*, **21(7)**, 1103-1126.
12. Chattopadhyay, R. and Ghosh, A. K. (2008) A quantitative approach to estimate the economic success of entrepreneurs in India. *Journal of Small Business and Entrepreneurship*, **21(1)**, 1-21.
13. Ghosh, A. K. and Hall, P. (2008) On error rate estimation in nonparametric classification. *Statistica Sinica*, **18(3)**, 1081-1100.

14. Ghosh, A. K. (2008) Kernel discriminant analysis using case-specific smoothing parameters. *IEEE Transactions on Systems, Man and Cybernetics, Part B*, **38(5)**, 1413-1418.
15. Chaudhuri, P., Ghosh, A. K. and Oja, H. (2009) Classification based on hybridization of parametric and nonparametric classifiers. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, **31(7)**, 1153-1164.
16. Mukhopadhyay, S. and Ghosh, A. K. (2011) Bayesian multiscale smoothing in supervised and semi-supervised kernel discriminant analysis. *Computational Statistics and Data Analysis*, **55(7)**, 2344-2353.
17. Dutta, S., Ghosh, A. K. and Chaudhuri, P. (2011) Some intriguing properties of Tukey's half-space depth. *Bernoulli*, **17(4)**, 1420-1434.
18. Dutta, S. and Ghosh, A. K. (2012) On robust classification using projection depth. *Annals of the Institute of Statistical Mathematics*, **64(3)**, 657-676.
19. Ghosh, A. K. and Godtliebsen, F. (2012) On hybrid classification using model assisted posterior estimates. *Pattern Recognition*. **45(6)**, 2288-2298.
20. Ghosh, A. K. (2012) A probabilistic approach for semi-supervised nearest neighbor classification. *Pattern Recognition Letters*. **33(9)**, 1127-1133.
21. Chattopadhyay, R. and Ghosh, A. K. (2012) Performance appraisal based on a forced distribution system: its drawbacks and remedies. *International Journal of Productivity and Performance Management*. **61(8)**, 881-896.
22. Biswas, M. and Ghosh, A. K. (2014) A nonparametric two-sample test applicable to high dimensional data. *Journal of Multivariate Analysis*, **123**, 160-171.
23. Dutta, S., Chaudhuri, P. and Ghosh, A. K. (2014) Linear discriminant analysis of character sequences using occurrences of words. *Statistica Sinica*, **24(1)**, 493-514.
24. Mandal, P. S. and Ghosh, A. K. (2014) A statistical approach towards secure location verification in noisy wireless channels. *International Journal of Foundations of Computer Science*, **25(5)**, 563-584.
25. Biswas, M., Mukhopadhyay, M. and Ghosh, A. K. (2014) A distribution-free two-sample run test applicable to high-dimensional data. *Biometrika*, **101(4)**, 913-926.
26. Karmakar, B., Dhara, K., Dey, K. K., Basu, A. and Ghosh, A. K. (2015) Testing statistical significance of a treatment effect in the presence of hidden sub-populations. *Statistical Methods and Applications*, **24(1)**, 97-119.
27. Mondal, P. K., Biswas M. and Ghosh A. K. (2015) On high dimensional two sample tests based on nearest neighbors. *Journal of Multivariate Analysis*, **141**, 168-178.
28. Biswas, M., Mukhopadhyay, M. and Ghosh, A. K. (2015) On some exact distribution-free one sample tests for high dimension, low sample size data. *Statistica Sinica*, **25(4)**, 1421-1435.
29. Dutta, S. and Ghosh, A. K. (2016) On some transformations of high dimension, low sample size data for nearest neighbor classification. *Machine Learning*, **102**, 5783.
30. Pal, A. K., Mondal, P. K. and Ghosh, A. K. (2016) High dimensional nearest neighbor classification based on mean absolute differences of inter-point distances. *Pattern Recognition Letters*, **74**, 1-8.
31. Biswas, M., Sarkar, S. and Ghosh, A. K. (2016) On some exact distribution-free tests of independence between two random vectors of arbitrary dimensions. *Journal of Statistical Planning and Inference*, **175**, 78-86.

32. Ghosh, A. K. and Biswas, M. (2016) Distribution-free high dimensional two-sample tests based on discriminating hyperplanes. *Test*, **25(3)**, 525–547.
33. Dutta, S., Sarkar, S. and Ghosh, A. K. (2016) Multiscale classification using localized spatial depth. *Journal of Machine Learning Research*, **17(218)**, 1–30.
34. Dutta, S. and Ghosh, A. K. (2017) Discussion on ‘Statistical Scale Space Methods’ by Lasse Holmström and Leena Pasanen. *International Statistical Review*, **85(1)**, 40–43.
35. Saha, E., Sarkar, S. and Ghosh, A. K. (2017) Some one-sample tests based on functions of interpoint distances. *Journal of Multivariate Analysis*, **161**, 83-95
36. Sarkar, S. and Ghosh, A. K. (2018) Some multivariate tests of independence based on ranks of nearest neighbors. *Technometrics*, **60(1)**, 101-111.
37. Sarkar, S. and Ghosh, A. K. (2018) On some high dimensional two-sample tests based on averages of inter-point distances. *Stat*, To appear.

Publications in Conference Proceedings

1. Ghosh, A. K., Chaudhuri, P. and Sengupta, D. (2003) Multi-scale kernel discriminant analysis. *Proceedings of 5th International Conference on Advances in Pattern Recognition* (Ed. D.P.Mukherjee and S. Pal), Allied Publishers, Calcutta, pp. 89-93.
2. Ghosh, A.K. and Bose, S. (2005) Feature extraction for nonlinear classification. *Proceedings of First International Conference on Pattern Recognition and Machine Intelligence* (Ed. S. K. Pal and S. N. Biswas), *Lecture Notes in Computer Science Series*, 3776, pp. 170-175.
3. Ghosh, A.K. (2007) Adaptive nearest neighbor classification. *Proceedings of 6th International Conference on Advances in Pattern Recognition* (Ed. P.Pal), World Scientific, Singapore, pp. 281-284.
4. Mandal, P. S. and Ghosh, A. K. (2011) Secure position verification for wireless sensor networks in noisy channels. *Lecture Notes in Computer Sciences (LNCS) Series 6811*, Springer, Paaderborn, Germany, pp. 150-163.
5. Jain, N., Dutta, S., Banerjee, A., Ghosh, A. K., Xu, L. and Huibiao, Z. (2013) Using Daikon to prioritize and cluster unit bugs. *Lecture Notes in Computer Science, Series 8348*, Springer, Cham, pp. 215-233.

Book Reviews

1. Ghosh, A. K. (2006) Review of “S+ Functional Data Analysis User’s Guide”, *Sankhya*, **68(1)**, 177-178.
2. Ghosh, A. K. (2006) Review of “The Basics of S-Plus (Fourth Edition)”, *Sankhya*, **68(1)**, 179-181.
3. Ghosh, A. K. (2007) Review of “Applied MANOVA and Discriminant Analysis”, *Journal of the American Statistical Association*, **102(479)**, 1075-1076.

Papers communicated/ Under revision

1. Dutta, S. and Ghosh, A. K. (2018) On classification based on L_p depth with adaptive choice of p .
2. Sarkar, S. and Ghosh, A. K. (2018) On perfect clustering of high dimensional data.
3. Sarkar, S., Ghosh, A. K. and Goswami, A. (2018) On a consistent test of independence between two random vectors of arbitrary dimensions.
4. Sarkar, S., Biswas, R. and Ghosh, A. K. (2018) On high-dimensional modifications of some graph based two-sample tests using a new class of dissimilarity indices.

TEACHING EXPERIENCE

Indian Institute of Technology, Kanpur

- Statistical Simulations and Data Analysis (M.Sc, 2nd Year), 2006-07.
- Statistical Pattern Recognition (M.Sc, 2nd Year and Ph.D. students), 2006-07 & 2007-08.
- Sampling Theory (M.Sc. 1st Year), 2007-08.
- Statistical Inference-I (M.Sc 1st Year), 2007-08.

Indian Statistical Institute, Kolkata

- Statistical Methods -III (B.Stat, 2nd Year), 2008-09 & 2009-10.
- Pattern Recognition and Image Processing (M.Stat, 2nd Year), 2008-09.
- Regression Techniques (M.Stat 1st Year), 2010-11.
- Statistical Inference -I (B.Stat 3rd Year), 2011-12.
- Statistical Methods -IV (B.Stat 2nd Year), 2011-12.
- Nonparametric Statistics (Ph.D. Students), 2012-13 & 2015-16.
- Applied Multivariate Analysis (M.Stat 2nd Year), 2012-13 & 2014-15.
- Statistical Inference -II (B. Stat 3rd Year), 2013-14.
- Statistical Computing (M.Stat 2nd Year), 2013-14, 2015-16, 2016-17 & 2018-19.
- Statistics (M.S.Q.E. 1st Year), 2014-15.
- Statistical Computing - II (M.Stat 2nd Year), 2016-17.
- Pattern Recognition (M.Stat 2nd Year), 2017-18.

PH.D. SUPERVISION

- Mummun Biswas (2016)
- Soham Sarkar (2018; thesis submitted in April)
- Angshuman Roy (2020; expected)

SUPERVISION OF M.STAT DISSERTATION

- Pronoy K. Mondal (2013-14)
- Enakshi Saha (2015-16)
- Rahul Biswas (2015-16)
- Subha Maity (2017-18)

SUPERVISION OF M.STAT PROJECT

- Arnab K. Pal (2013-14)
- Arya Banerjee (2017-18)
- Debosmita Kundu (2017-18)
- Sourabh Raj (2017-18)

SUPERVISION OF M.SC DISSERTATION OUTSIDE ISI, KOLKATA

- Chinmoy Sapre, IISER, Kolkata (2015-16) [Co-advisor: Dr. Satyaki Majumder. IISER, Kolkata]

OTHER PROFESSIONAL EXPERIENCE

- Served several admission committees and other committees either as a convener or as a member.
- Served as a organising committee member for several conferences/workshops.
- Organized invited paper sessions in several national and international conferences.
- Attended several national and international conferences as invited speaker.
- Served as a reviewer for several leading statistics and computer science journals.
- Supervised several IAS-INSA-NASI summer fellows.