

Rohit Kumar Patra

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July 27, 2018

Research Interests

- Semiparametric inference and empirical processes
- Nonparametric function estimation (especially with shape constraints)
- Non-standard asymptotics and bootstrap based inference
- Statistical methods and applications in image processing and astronomy

Academic Positions

- Assistant Professor, Department of Statistics, University of Florida 2016 –current

Education

- Columbia University: Ph.D. in Statistics 2010–2016
Thesis Advisor: Bodhisattva Sen
- Columbia University: Master of Arts in Statistics 2010–2011
- Indian Statistical Institute: Master of Statistics 2008–2010
Specialization: Mathematical Statistics and Probability
- Indian Statistical Institute: Bachelor of Statistics (Distinction) 2005–2008

Publications and Preprints

1. **Patra, R. K.**, Seijo, E., and Sen, B. (2018). A consistent bootstrap procedure for the maximum score estimator. *J. Econometrics*. **205**(2) 488-507.
<http://arxiv.org/abs/1105.1976>
R-code: <http://stat.ufl.edu/~rohitpatra/Code/MSEcompute>
2. **Patra, R. K.** and Sen, B. (2016). Estimation in a Two-component Mixture Model with Applications to Multiple Testing. *J. Roy. Statist. Soc. Ser. B*. **78**(4) 869-893.
<http://arxiv.org/abs/1204.5488>
R-code: <http://stat.ufl.edu/~rohitpatra/Code/mixmodel.html>
3. **Patra, R. K.**, Sen, B., and Székely, G. (2016). On a Nonparametric Notion of Residual and its Applications. *Statist. Probab. Lett.* **109**, 208–213.
<http://arxiv.org/abs/1409.3886>
R-code: <http://stat.ufl.edu/~rohitpatra/Code/NPResCode>

4. Liu, J., Zhou, X., **Patra, R. K.**, and Weinan, E. (2011). Failure of random materials: A large deviation and computational study. *Proceedings of the 2011 Winter Simulation Conference*, 3779–3789.
<http://dx.doi.org/10.1109/WSC.2011.6148070>
5. **Patra, R. K.**, Mandal, A., and Basu, A. (2008). Minimum Hellinger Distance Estimation with Inlier Modification. *Sankhya: Series B*, **70** (2), 310–322.
<http://www.jstor.org/stable/41234437>
6. Kuchibhotla, A. K. and **Patra, R. K.** (2018+) Efficient Estimation in Smooth Single Index Models.
<https://arxiv.org/abs/1612.00068>
R-package: <https://cran.r-project.org/web/packages/simest/>
7. Kuchibhotla, A. K., **Patra R. K.**, and Sen, B. (2018+). Least Squares Estimation in a Single Index Model with Convex Lipschitz link.
<https://arxiv.org/abs/1708.00145>
R-package: <https://cran.r-project.org/web/packages/simest/>

Ongoing Inter-disciplinary Collaborations

1. A machine vision method for the automatic classification of stellar halo substructure — with David Hendel, Kathryn V. Johnston, and and Bodhisattva Sen
Brief description: <http://stat.ufl.edu/~rohitpatra/PapersandDraft/astro.pdf>

Teaching Experience

- **Instructor** for STA4322: Introduction to Probability Fall, 2017
- **Instructor** for STA4321: Introduction to Probability Fall, 2016, Spring 2017
— created syllabus, course material and lectured twice a week to a class of ~60 undergraduate students from various disciplines and backgrounds.
- **Instructor** for W1211: Introduction to Statistics (with Calculus) Fall 2013
— created syllabus, course material and lectured twice a week to a class of 35 undergraduate students from various disciplines and backgrounds.
- **Instructor** for Qualifying Exam Prep. in Probability for Ph.D. students 2013–15
— created syllabus, course material and lectured once a week during the summer for the first year Ph.D. students.
- Teaching Assistant for:
 1. Statistical Inference for Ph.D. students: G6107-08 2012, Spring 2014, Fall 2015
 2. Elementary Stochastic Processes: W4606 Spring 2015
 3. Probability and Statistical Inference: W4109 Spring 2011, Fall 2014

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| 4. Stochastic Processes and Applications: G6501 | Spring 2013 |
| 5. Introduction to Statistics: W1211 | Fall 2010 |

Internship

- Research intern at the Data Science group, American Insurance Group, New York Summer, 2014
— lead researcher in building a prototype image identification and damage detection system using image processing and statistical tools.

Conference and Poster Presentation

1. Department of Industrial and System Engineering at University of Florida, Spring 2019.
2. Statistics Day at Department of Statistics of University of Georgia, October, 2018.
3. Department of Mathematics at Beijing Jiaotong University, Beijing, China, July, 2018.
4. 4th conference of the International Society For Nonparametric Statistics, Salerno, Italy, June, 2018.
5. Invited presentation at IISA International Conference on Statistics, Gainesville, FL, May, 2018.
6. Workshop on Shape-Constrained Methods: Inference, Applications, and Practice at Banff, Canada, January 2018.
7. Department of Statistics, University of Michigan, October 2017.
8. Invited presentation at Joint Statistical Meeting, Baltimore, August 2017.
9. 2017 IMS-China International Conference on Statistics and Probability, Nanjing, July 2017.
10. Department of Statistics, Florida State University, March 2017.
11. Presentation at YES VIII Workshop on Uncertainty Quantification, Eindhoven, Netherlands, January 2017.
12. Department of Statistics, University of Florida, March 2016.
13. Department of Statistics, University of North Carolina at Charlotte, Feb 2016.
14. Department of Statistics, University of Missouri, Jan 2016.
15. Section on Nonparametric Statistics, Joint Statistical Meetings (JSM), Boston, August, 2014.
16. Invited presentations at the Minghui Memorial Conference, Columbia University, 2013 and 2015.
17. Contributed poster at the JSM, Seattle, August, 2015.
18. Contributed poster at the NSF Workshop for Empirical Process and Modern Statistical Decision Theory on the Occasion of the 65th Birthday of David Pollard, May, 2015.

19. Student presentation at International Indian Statistical Association Conference, Riverside, CA, July, 2014.
20. Presentations at the department student seminar, 2013 (November) and 2015 (March).

Honors and Awards

1. Travel award, JSM, Seattle, Graduate School of Arts and Sciences, August, 2015.
2. Travel award for Nonparametric statistical inference under shape constraints at International Center for Mathematical Sciences, Edinburgh, UK, May, 2016.
3. Travel award for NSF Workshop for Empirical Process and Modern Statistical Decision Theory on the Occasion of the 65th Birthday of David Pollard, May, 2015.
4. Dewesh-Kamal scholarship, Ramakrishna Mission Institute of Culture, Kolkata, August, 2010.
5. National Fellowship in basic sciences (Kishore Vaigyanik Protsahan Yojana), Department of Science and Technology, Government of India, 2005–2010.
6. Awards of Academic Excellence, Indian Statistical Institute, Kolkata, 2009.
7. National Initiative on Undergraduate Science Fellowship, Homi Bhabha Center for Science Education, Mumbai, India, June, 2006.

Professional Services and Activities

1. **Reviewer for:**

- Annals of Applied Statistics
- Annals of Statistics
- Biometrika
- Electronic Journal of Statistics
- Econometric Theory
- Journal of Computational and Graphical Statistics
- Journal of Statistical Planning and Inference
- Journal of the American Statistical Association
- Journal of Nonparametric Statistics
- Statistica Neerlandica
- Statistica Sinica
- Statistica Science
- Statistics and Probability Letters

2. Local **organizer** of IISA 2018 International Conference on Statistics, Summer, 2018
3. **Co-organizer** of The Fifteenth winter workshop at University of Florida, Spring, 2018

4. Local **organizer** of The Fifth International Workshop in Sequential Methodologies, Fall 2015
5. **Organizer** of the Student Reading Group in the Statistics Department, Fall and Spring 2015.

Courses Taken During Ph.D.

Bayesian Nonparametrics; Causal Inference; Computational Probability; Communication in Statistics; Copulas in Statistics; Empirical Bayes; Empirical Processes and Large Deviation; Empirical Process Theory; Foundations of Optimization; Long Range Dependence; Modeling Heavy-Tailed Time Series; Survival Analysis; Topics in Stochastic Analysis.

Professional Memberships

International Indian Statistical Association; International Society For Nonparametric Statistics; Institute of Mathematical Statistics; American Statistical Association.

Scientific Software

Extensive experience with R and MATLAB, including the use of high performance computing environment.

References

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