

## SATISH IYENGAR

### OFFICE ADDRESS

Department of Mathematics and Statistics  
University of Canterbury  
Christchurch, NZ  
64 3 364-8339, *s.iyengar@math.canterbury.ac.nz*

### HOME ADDRESS

35 Ashbourne Street  
Christchurch, NZ  
64 3 357-4784

### EDUCATION

Ph.D. in Statistics, Stanford University, 1982.  
A.B. in Mathematics, Harvard University, 1978.

### POSITIONS HELD

University of Canterbury, Christchurch, NZ

Visiting Professor, Department of Mathematics and Statistics, since 2004.

University of Pittsburgh, Pittsburgh, PA, USA

Chair, Department of Statistics, 2000-2003.

Professor, Department of Statistics, since 1998.

Associate Professor, Department of Mathematics and Statistics, 1990–1997.

Assistant Professor, Department of Mathematics and Statistics, 1982–1990.

Assistant Professor, Department of Psychiatry, joint appointment since 1985.

Stanford University, Stanford, CA, USA

Visiting Scholar, Statistics Department, Summers 1983–2003.

Research and Teaching Assistant, Statistics Department, 1978–1982.

Australian National University, Canberra, ACT, AU

Visiting Professor, School of Mathematics, 1999.

Carnegie Mellon University, Pittsburgh, PA, USA

Visiting Associate Professor, Statistics Department, 1991–1992.

Post-Doctoral Fellow, Statistics Department, 1985–1988.

Harvard University, Cambridge, MA, USA

Undergraduate Instructor, Mathematics Department, 1976–1978.

### HONORS

Elected member of the International Statistical Institute.

### GRANTS, FELLOWSHIPS, CONTRACTS

National Institute of Health, 2001–2004. The analysis of nonstationary point process data. (Co-investigator. Principal investigator: R. Kass.)

National Institute of Mental Health, 2002–2007. Neurobehavioral changes in pediatric affective disorders. (Director of Data Analytic Core. Principal investigator: N. Ryan.)

National Institute of Mental Health, 2002–2007. Advanced center for intervention and services research. (Co-investigator. Principal investigator: D. Brent.)

National Institute of Health, 2002–2006. Modeling the acute inflammatory response. (Co-investigator. Principal investigator: C. Chow.)

National Institute of Mental Health, 1993–2003. Behavioral neuroscience and schizophrenia. (Co-investigator. Principal investigator: D. Lewis.)

National Institute of Mental Health, 1997–2002. The psychobiology of childhood anxiety and depression. (Director of Data Analytic Core. Principal investigator: N. Ryan.)

National Institute of Mental Health, 1997–2002. CADPRC for early-onset affective and anxiety disorders. (Director of Statistics Core. Principal investigator: D. Brent.)

National Institute of Mental Health, 1997–2000. Familial pathways of early onset suicide attempt. (Co-investigator. Principal investigators: D. Brent, J. Mann.)

National Institute of Mental Health, 1996–1999. Adolescent depression: treatment and outcome. (Co-investigator. Principal investigator: D. Brent.)

Office of Naval Research, 1993–1996. Boundary crossing problems with applications to the neural sciences.

National Science Foundation, SCREMS, 1994–1995. (Co-investigator. Principal investigator: T. Savits.)

National Institute of Mental Health, 1995. Depression in newly diagnosed juvenile diabetics. (Co-investigator. Principal investigator: M. Kovacs.)

Office of Naval Research, 1991–1994. Statistical problems in single neuron activity.

Office of Naval Research, 1989–1991. Statistical methods for the neurosciences.

National Institute of Mental Health, 1991–1996. Psychobiology of depression in children and adolescents. (Director of Data Analytic Core. Principal investigator: N. Ryan.)

Power Systems Research, Inc. Contract, 1989. Development of analytical techniques to assist in evaluation of power system composite reliability indices. (Co-investigator. Principal investigator: M. Mazumdar.)

National Institute of Mental Health, 1986–1990. Psychobiology of depression in children and adolescents. (Director of Data Analytic Core. Principal investigator: J. Puig-Antich.)

National Institute of Mental Health, 1985–1988. Fellowship in psychiatric statistics.

University of Pittsburgh, 1983. FAS Type I summer research grant.

## **PUBLICATIONS**

### **A. Statistics**

1. Iyengar, S., Solomon, H. (1983) Selecting representative points in normal populations. *Recent*

- Advances in Statistics*. H. Rizvi, J. Rustagi, D. Siegmund, editors. Academic Press. 579–591.
2. Iyengar, S. (1985) Hitting lines with two-dimensional Brownian motion. *SIAM Journal of Applied Mathematics*. **45**, 983–989.
  3. Iyengar, S. (1986) On a lower bound for the multivariate normal Mills' ratio. *Annals of Probability*. **14**, 1399–1403.
  4. Iyengar, S., Patwardhan G. (1988) Recent developments in the inverse Gaussian distribution. *Handbook of Statistics 7*. P.R. Krishnaiah, C.R. Rao, editors. North-Holland. 479–499.
  5. Iyengar, S., Greenhouse, J.B. (1988) Discussion of the paper by Begg and Berlin. *Journal of the Royal Statistical Society Series A*. **151**, 454.
  6. Iyengar, S., Greenhouse, J.B. (1988) Selection models and the file-drawer problem (with discussion). *Statistical Science*. **3**, 109–135.
  7. Iyengar, S. (1988) Evaluation of normal probabilities of symmetric regions. *SIAM Journal of Scientific and Statistical Computing*. **9**, 418–424.
  8. Iyengar, S., Tong, Y.L. (1989) Convexity of elliptically contoured distributions with applications. *Sankhya, Series A*. **51**, 13–29.
  9. Greenhouse, J.B., Fromm, D., Iyengar, S., Dew, M.A., Holland, A., Kass, R. (1990) The making of a meta-analysis: a quantitative review of the aphasia treatment literature. *The Future of Meta-Analysis*. M. Straf, K. Wachter, editors. Sage Press. 29–46.
  10. Iyengar, S. (1991) Much ado about meta-analysis. *Chance*. **4**, 33–40.
  11. Iyengar, S. (1993) Plackett's identity, its generalizations, and their uses. *Multiple Comparisons, Selection, and Applications in Biometry*. F.M. Hoppe, editor. Marcel-Dekker. 121–135.
  12. Greenhouse, J.B., Iyengar, S. (1993) Sensitivity analysis and diagnostics. *Handbook of Research Synthesis*. H. Cooper, L. Hedges, editors. Sage Publications. New York. 383–398.
  13. Iyengar, S., Zhao, P.L. (1994) Maximum likelihood estimation for weighted distributions. *Probability and Statistics Letters*. **21**, 37–47.
  14. Mendoza-Blanco, J., Tu, X.M., Iyengar, S. (1996) Bayesian inference on prevalence using a missing-data approach with simulation-based techniques: applications to HIV screening. *Statistics in Medicine*. **15**, 2161–2176.
  15. Iyengar, S. (1996) Parameter estimation for a diffusion approximation to Stein's model. *Computation in Cellular and Molecular Biological Systems*. R. Cuthbertson, M. Holcombe, R. Paton, editors. 265–277.
  16. Iyengar, S., Liao, Q. (1997) Modeling neural activity using the generalized inverse Gaussian distribution. *Biological Cybernetics*. **77**, 289–295.
  17. Iyengar, S., Mazumdar, M. (1998) A saddle point approximation for certain multivariate tail probabilities. *SIAM Journal of Scientific Computing*. **19**, 1234–1244.

18. Iyengar, S., Kvam, P., Singh, H. (1999) Fisher information in weighted distributions. *Canadian Journal of Statistics*. **27**, 833–841.
19. Iyengar, S. (2000) Diffusion models for neural activity. *Statistics for the 21<sup>st</sup> Century*. C.R. Rao, G. Szekely, editors. Marcel-Dekker 233-250.
20. Iyengar, S. (2001) The analysis of multiple neural spike trains. In *Advances in Methodological and Applied Aspects of Probability and Statistics*. N. Balakrishnan, editor. Gordon and Breach, 507-524.
21. Chen, T., Hoppe, F., Iyengar, S., Brent, D. (2003) A hybrid logistic model for case-control studies. *Methodology and Computing in Applied Probability*, **5**, 419–426.

## **B. Collaborative**

1. Ryan, N.D., Puig-Antich, J., Ambrosini, P., Rabinovich, H., Nelson, B., Iyengar, S., Twomey, J. (1987) The clinical picture of major depression in children and adolescents. *Archives of General Psychiatry*. **44** 854-861.
2. Puig-Antich, J., Goetz, D., Davies, M., Kaplan, T., Davies, S., Ostrow, L., Asnis, L., Twomey, J., Iyengar, S., Ryan, N.D. (1989) A controlled family history study of pre-pubertal major depressive disorder. *Archives of General Psychiatry*. **46** 406-418.
3. Antoinette, T., Iyengar, S., Puig-Antich, J. (1990) Is locked seclusion necessary for children under the age of 14 ? *American Journal of Psychiatry*. **147** 1283-1289.
4. Kovacs, M., Iyengar, S., Goldston, D., Obrosky, M.S., Stewart, J., Marsh, J. (1990) Psychological functioning among mothers of children with insulin-dependent diabetes mellitus: a longitudinal study. *Journal of Consulting and Clinical Psychology*. **58** 189-195.
5. Kovacs, M., Iyengar, S., Goldston, D., Obrosky, M.S., Stewart, J., Marsh, J. (1990) Psychological functioning of children with insulin-dependent diabetes mellitus. *Journal of Pediatric Psychology*. **15** 619-632.
6. Ryan, N.D., Williamson, D., Iyengar, S., Orvashel, H., Reich, T., Dahl, R., Puig-Antich, J. (1992) A secular increase in child and adolescent onset affective disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*. **31** 600-605.
7. Ryan, N.D., Birmaher, B., Perel, J., Dahl, R., Meyer, V., Al-Shabbout, M., Iyengar, S. Puig-Antich, J. (1992) Neuroendocrine response to L-5 hydroxytryptophan challenge in prepubertal major depression. *Archives of General Psychiatry*. **49** 843-851.
8. Kovacs, M., Goldston, D., Obrosky, D.S., Iyengar, S. (1992) Prevalence and predictors of pervasive noncompliance with medical treatment among youths with insulin-dependent diabetes mellitus. *Journal of the American Academy of Child and Adolescent Psychiatry*. **31** 1112-1119.
9. Kovacs, M. Goldston, D., M.S., Iyengar, S. (1992) Intellectual development and academic performance of children with insulin-dependent diabetes mellitus: a longitudinal study. *Developmental Psychology*. **28** 676-684.

10. Ryan, N.D., Dahl, R., Birmaher, B., Williamson, D., Iyengar, S., Nelson, B., Puig-Antich, J., Perel, J. (1995) Stimulatory tests of growth hormone secretion in prepubertal major depression: depressed versus normal children. *Journal of the American Academy of Child and Adolescent Psychiatry*. **33** 824-833.
11. Kovacs, M., Drash, A., Mukerji, P., Iyengar, S. (1995) Biomedical and psychiatric risk factors for retinopathy among children with IDDM. *Diabetes Care*. **18** 1592-1599.
12. Goldston, D., Kovacs, M., Obrosky, M.S., Iyengar, S. (1995) A longitudinal study of life events and metabolic control among youths with insulin-dependent diabetes mellitus. *Health Psychology*. **14** 409-414.
13. Kovacs, M., Iyengar, S., Mukerji, P., Drash, A. (1996) Psychiatric disorder and metabolic control among youths with IDDM. *Diabetes Care*. **19** 318-323.
14. Brent, D., Holder, D., Kolko, D., Birmaher, B., Baugher, M., Roth, C., Iyengar, S., Johnson, B. (1997) A clinical psychotherapy trial for adolescent depression comparing cognitive, family, and supportive therapy. *Archives of General Psychiatry*. **54** 877-885.
15. De Bellis, M.D., Keshavan, M.S., Frustaci, K., Shifflett, H., Iyengar, S., Beers, S.R., Hall, J. (2002) Superior temporal gyrus volumes in maltreated children and adolescents with PTSD. *Biological Psychiatry*, 51:544-552.
16. De Bellis, M.D., Keshavan, M.S., Dahl, R., Birmaher, B., Hall, J., Frustaci, K., Boring, A.M., Shifflett, H., Iyengar, S., Ryan, N. (2002) Superior temporal gyrus volumes in Pediatric Generalized Anxiety Disorder. *Biological Psychiatry*, 51:553-562.
17. Campo, J., Bridge, J., Ehmann, M., Altman, S., Lucas, A., Birmaher, B., DiLorenzo, C., Iyengar, S., Brent, D. (2003) Recurrent abdominal pain, anxiety, and depression in primary care. *Pediatrics*, to appear.

### C. Book Reviews

1. Iyengar, S. (1997) *Statistical Inference - Based on the Likelihood* by A. Azzalini. *Journal of the American Statistical Association*. **92** 1220-1221.
2. Iyengar, S. (1997) *A Course in Stochastic Processes* by D. Bosq and H. T. Nguyen. *Journal of the American Statistical Association*. **92** 1651.
3. Iyengar, S. (1998) *Multivariate Models and Dependence Concepts* by H. Joe. *Technometrics*. **40**, 348-9.

### D. Mathematical Reviews

To date, reviewed 25 papers:

03i:60026, 03i:60024, 03f:60041, 03f:15012, 03c:62030, 02j:60147, 02a:62013, 01f:60015, 00h:62056, 00c:62088, 00b:62103, 98f:62283, 98c:62021, 97i:62065, 97g:62094, 97c:62117, 96k:60103, 96f:60138, 96c:62102, 95c:62036, 95c:60018, 93k:60036, 93e:60166, 93d:62100, 93d:60133.

## **ADVISING AND TEACHING**

### **A. Ph. D. Students**

Primary adviser for the following students (year of graduation, current position):

1. Qiming Liao (1995, Senior Statistician, Glaxo-Wellcome).
2. Sa Shen (1997, Assistant Professor, Columbia University).
3. Silviu Bacanu (1998, Assistant Professor, Western Psychiatric Institute and Clinic).
4. Aurele Hounghedji (2000, Hedge fund analyst, Ohio Savings Bank).
5. Oded Meyer (2000, Senior Lecturer, Statistics Department, Carnegie Mellon University).
6. Youngju Lee (2001, Vice President, Allianz Hedge Fund Partners).

Now advising Ms. Gabriela Czanner and Ms. Melissa Ziegler.

Served on dissertation committees in Departments of Statistics, Philosophy, Economics, Industrial Engineering, Information Science and Carnegie Mellon's Statistics Department.

### **B. Others**

Primary adviser for N. Leon, M.S. (1985).

Served as adviser for several undergraduate Statistics majors.

### **C. Courses Taught**

Undergraduate: introductory statistics, statistical computing, multivariate analysis, intermediate probability and statistics, stochastic processes.

Masters: linear models, data mining, meta-analysis, discriminant analysis, consulting.

Doctoral: statistical theory, asymptotics, probability theory, meta-analysis, stochastic differential equations.

## **INVITED TALKS**

### **A. Meetings**

Neuroinformatics. Marine Biological Laboratories, Woods Hole MA, August 2003.

Point Processes and Applications. BIRS, Banff Canada, June 2003.

Neuroinformatics. Marine Biological Laboratories, Woods Hole MA, August 2002.

Interface 2002, Montreal, CA, April, 2002.

Workgroup on the Analysis of Neural Data. Woods Hole MA, August 1998-2001.

International Indian Statistical Association Conference. Hamilton ONT, October 1998.

Lukacs Symposium. Bowling Green OH, April 1998.

IMS-ENAR Spring Meeting. Pittsburgh PA, March 1998.

Joint Statistical Meetings (Special Contributed Session). Chicago IL, August 1996.

Conference on Information Processing in Cells and Tissues. Liverpool U.K., September 1995.

ONR Conference on Single Neuron Computation. Arlington VA, July 1993.

Joint Statistical Meetings. Boston MA, August 1992.

ONR Conference on Moments and Signal Processing. Monterey CA, April 1992.

AMS-IMS-SIAM Summer Research Conference. Seattle WA, June 1991.  
Symposium on Biostatistics and Statistics. Hamilton ONT, May 1991.  
EPA Conference on Statistics. Richmond VA, March 1991.  
ONR Conference on New Directions in Statistics. Arlington VA, November 1990.  
ONR Conference on Single Neuron Computation. Woods Hole MA, September 1990.  
AMS-IMS-SIAM Summer Research Conference. Arcata CA, June 1989.  
ASA Regional Meeting. Lexington KY, April 1989.  
ASA Regional Meeting. Boston MA, April 1988.  
NRC Workshop on the Future of Meta-Analysis. Hedgesville WV, October 1986.

### **B. Departmental Seminars**

University of Western Ontario, Statistics Department, October 2003.  
University of Pennsylvania, Statistics Department, October 2003.  
Case-Western Reserve University, Statistics Department, February 2003.  
University of Canterbury, Department of Mathematics and Statistics, February 2003.  
West Virginia University, Statistics Department, October 2001.  
McGill University, Department of Mathematics and Statistics, September 2000.  
Michigan State University, Statistics Department, November 1999.  
Latrobe University, Statistics Department, March 1999.  
University of Sydney, Statistics Department, March 1999.  
Australian National University, Statistics Department, March 1999.  
Ohio State University, Statistics Department, February 1996.  
Purdue University, Statistics Department, October 1995.  
Pennsylvania State University, Statistics Department, April 1994.  
Florida State University, Statistics Department, April 1992.  
North Carolina State University, Statistics Department, March 1991.  
University of Pittsburgh, Biostatistics Department, October, 1988.  
University of Maryland, Baltimore Co., Statistics Department, October 1987.  
Stanford University, Departments of Statistics and Psychology, July 1986.  
Carnegie Mellon University, Statistics Department, October 1985.  
Carnegie Mellon University, Statistics Department, April 1984.

### **PROFESSIONAL ACTIVITY**

Served on four review panels for the National Institute of Health since 2000.

Member, NSA Statistical Advisory Group, Stanford University, 1980–2002.

Refereed proposals to National Science Foundation, National Institutes of Health, Air Force Office of Scientific Research and MITACS (Canada); refereed one report of the National Academy of Sciences.

Refereed articles for *Annals of Statistics*, *Journal of the American Statistical Association*, *Statistical Science*, *SIAM Journal of Scientific Computing*, *Technometrics*, *Biometrics*, *Journal of Multivariate Analysis*, *American Journal of Psychiatry*, *Archives of General Psychiatry*.

Taught short courses on meta-analysis with I. Olkin and T. Chalmers at the University of Pittsburgh, May 1991, and at the Upjohn Corporation, Kalamazoo MI, October 1991.

Treasurer, Pittsburgh Chapter of the American Statistical Association, 1984–1988.

### **UNIVERSITY SERVICE**

Several promotion and tenure committees.

FAS Summer Grants Committee, 1993-1996; chair 1995–1996.

*Ad hoc* Planning and Budgeting System Review Committee, 1995–1996.

Statistics Department liaison to College in High School Program, 1995–2001.

Applied Statistics Education Committee, since 1994.

WPIC Research Committee, since 1990.