

SATISH IYENGAR

Department of Statistics
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EDUCATION

PhD in Statistics, Stanford University, 1982.
AB in Mathematics, Harvard University, 1978.

ACADEMIC POSITIONS

University of Pittsburgh, Pittsburgh, PA

Chair, Department of Statistics, 2000-2009, 2010-2016, 2018-2023.
Professor, Department of Statistics, since 1998.
Professor, Department of Psychiatry, joint appointment, since 2004.
Professor, Clinical and Translational Science Institute, since 2010.
Associate Professor, Department of Mathematics and Statistics, 1990-1997.
Assistant Professor, Department of Psychiatry, joint appointment, 1985-2004.
Assistant Professor, Department of Mathematics and Statistics, 1982-1990.

Visiting Scholar

Oxford University, Oxford, United Kingdom, 2016.
University of California, Berkeley, CA, 2016.
Akdeniz University, Antalya, Turkey, 2014.
Stanford University, Stanford, CA, 1983-2013.
University of Canterbury, Christchurch, New Zealand, 2004.
Australian National University, Canberra, Australia, 1999.
Carnegie Mellon University, Pittsburgh, PA, 1991-1992.

Marine Biological Laboratories, Woods Hole, MA

Instructor, Neuroinformatics, 2002-2012.
Instructor, Workshop on the Analysis of Neural Data, 1998-2001.

Carnegie Mellon University, Pittsburgh, PA

Postdoctoral Fellow, Statistics Department, 1985-1988.

Stanford University, Stanford, CA

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

Harvard University, Cambridge, MA

Undergraduate Instructor, Mathematics Department, 1976-1978.

ADVISORY POSITIONS

Statistics Adviser, Center for Interventions to Enhance Community Health,
University of Pittsburgh, since 2017.

Member, FDA Advisory Committee for Psychopharmacologic Drugs, 2016-2024.

Member, NSA Statistical Advisory Group, Stanford University, 1980-2013.

HONORS

Provost's Award for Excellence in Mentoring, University of Pittsburgh, 2018.
P.R. Krishnaiah Memorial Lecturer, Pennsylvania State University, 2017.
Statistician of the Year, Pittsburgh Chapter of the ASA, 2010.
Keynote speaker, New Zealand Statistical Society Annual Meeting, 2005.
Elected member of the International Statistical Institute, 2004.

PUBLICATIONS

A. Statistics

- Iyengar S. (2021) Maximum likelihood estimation for an Ornstein-Uhlenbeck model for neural activity. *Journal of Statistical Theory and Practice*, in press.
- Iyengar S. (2021) On the exceedances of exchangeable random variables. *Sankhya B*, Online First: 10.1007/s13571-021-00252-3.
- Simsek B, Iyengar S. (2019) Computing tail areas for a high-dimensional Gaussian mixture. *Applicable Analysis and Discrete Mathematics*, 13, 871-882.
- Gaunt R, Iyengar S, Olde Dalhuis A, Simsek B. (2019) An asymptotic expansion for the normalizing constant of the Conway-Maxwell-Poisson distribution. *Annals of the Institute of Statistical Mathematics*, 71: 163-180.
- Simsek B, Iyengar S. (2017) On certain mathematical problems in two-photon laser scanning microscopy. *Mathematical Modeling and Analysis*, 22, 587-600.
- Saunders D, Tsui LK, Iyengar S. (2017) Lower tail dependence of hitting times of two-dimensional diffusions. *Probability in the Engineering and Informational Sciences*, doi.org/10.1017/S0269964817000353.
- Wallace ML, Buysse DJ, Germain A, Hall MH, Iyengar S. (2017) Variable selection for skewed model-based clustering: application to identification of novel sleep phenotypes. *J American Statistical Association*, 113, 95-110.
- Simsek B, Iyengar S. (2017) Overdispersed count models for mRNA transcription. *Hacetatepe J of Mathematics and Statistics*, doi:10.15672/HJMS.2017.422.
- Simsek B, Iyengar S. (2017) On the distribution of photon counts with censoring in two-photon laser scanning microscopy. *J Mathematical Imaging and Vision*, 58, 47-56.
- Iyengar, S. (2016) Case for fMRI data repositories. Invited commentary. *Proceedings of the National Academy of Sciences*, 113, 7699-7700.
- Simsek B, Iyengar S. (2016) Approximating the Conway-Maxwell-Poisson normalizing constant. *Filomat*, 30, 953-960.
- Frepoli C, Ohkawa K, Iyengar S. (2013) Theory and practice in the use of order statistics in best-estimate plus uncertainty safety analyses. In *Proceedings of the 15th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-15)*.
- Zhao M, Batista AB, Cunningham JP, Chestek C, Alvidrez ZR, Kalmar R, Ryu S, Shenoy K, Iyengar S. (2012) An L_1 -regularized logistic model for detecting short-term neuronal in-

- teractions. *J Computational Neuroscience*, 32, 479-497.
- Perez-Rosello T, Baker JL, Ferrante M, Iyengar S, Ascoli GA, Barrionuevo G. (2011) Passive and active shaping of unitary responses from associational/commissural and perforant path synapses in hippocampal CA3 pyramidal cells. *J Computational Neuroscience*, 31, 159-182.
- Frepoli C, Iyengar S. (2011) A comparison of non-parametric tolerance limits with linear combinations of order statistics in safety analysis. *Proceedings of ICAPP 2011*, 1392-1401.
- Driscoll J, Shih A, Iyengar S, Field J, White G, Squier JA, Cauwenberghs G, Kleinfeld D. (2011) Photon counting, censor corrections, and lifetime imaging for improved detection in two-photon microscopy. *J Neurophysiology*, 105, 3106-3113.
- Zhao M, Iyengar S. (2009) Nonconvergence in logistic and Poisson models for neural spiking. *Neural Computation*, 22, 1231-1244.
- Paninski L, Brown EN, Iyengar S, Kass RE. (2009) Statistical models of spike trains. In *Stochastic Methods in Neuroscience*, C Laing, G Lord, editors. Oxford, 272-298.
- Chen JT, Iyengar S, Brent D. (2007) Constraint estimation for the population attributable risk. *J Applied Probability and Statistics*, 2, 251-265.
- Mullowney P, Iyengar S. (2008) Parameter estimation for a leaky integrate-and-fire neuronal model from ISI data. *J Computational Neuroscience*, 24, 179-194.
- Iyengar S. (2007) Invited comment on paper by Ramsay, et al. *J Royal Statistical Society, B*, 69, 785.
- Czanner G, Grün S, Iyengar S. (2005) Theory of the snowflake plot and its relations to higher-order analysis methods. *Neural Computation*, 17, 1456-1479.
- 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.
- Iyengar S. (2000) Diffusion models for neural activity. *Statistics for the 21st Century*. CR Rao, G Szekely, editors. Marcel-Dekker, 233-250.
- Iyengar S, Kvam P, Singh H. (1999) Fisher information in weighted distributions. *Canadian J Statistics*, 27, 833-841.
- Iyengar S, Mazumdar M. (1998) A saddle point approximation for certain multivariate tail probabilities. *SIAM J Scientific Computing*, 19, 1234-1244.
- Iyengar S, Liao Q. (1997) Modeling neural activity using the generalized inverse Gaussian distribution. *Biological Cybernetics*, 77, 289-295.
- 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.
- Mendoza-Blanco J, Tu XM, 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.

Iyengar S, Zhao PL. (1994) Maximum likelihood estimation for weighted distributions. *Probability and Statistics Letters*, 21, 37-47.

Greenhouse JB, Iyengar, S. (1993) Sensitivity analysis and diagnostics. *Handbook of Research Synthesis*. H Cooper, L Hedges, editors. Sage, 383-398.

Iyengar S. (1993) Plackett's identity, its generalizations, and their uses. *Multiple Comparisons, Selection, Applications in Biometry*. F Hoppe, editor. Marcel-Dekker, 121-135.

Iyengar S. (1991) Much ado about meta-analysis. *Chance*, 4, 33-40.

Greenhouse JB, Fromm D, Iyengar S, Dew MA, 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.

Iyengar S, Tong YL. (1989) Convexity of elliptically contoured distributions with applications. *Sankhya, Series A*, 51, 13-29.

Iyengar S. (1988) Evaluation of normal probabilities of symmetric regions. *SIAM J Scientific and Statistical Computing*, 9, 418-424.

Iyengar S, Greenhouse JB. (1988) Selection models and the file-drawer problem (with discussion). *Statistical Science*, 3, 109-135.

Iyengar S, Greenhouse JB. (1988) Discussion of the paper by Begg and Berlin. *J Royal Statistical Society Series A*, 151, 454.

Iyengar S, Patwardhan G. (1988) Recent developments in the inverse Gaussian distribution. *Handbook of Statistics 7*. P Krishnaiah, CR Rao, editors. North-Holland, 479-499.

Iyengar S. (1986) On a lower bound for the multivariate normal Mills' ratio. *Annals of Probability*, 14, 1399-1403.

Iyengar S. (1985) Hitting lines with two-dimensional Brownian motion. *SIAM J Applied Mathematics*, 45, 983-989.

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.

B. Collaborative

Tsui FR, Shi L, Ruiz V, Ryan ND, Biernesser C, Iyengar S, Walsh CG, Brent DA. (2021) Natural Language Processing and Machine Learning of Electronic Health Records for Prediction of First-time Suicide Attempts. *J of the American Medical Informatics Association*, in press.

Bhatia T, Gujral S, Sharma V, Kumari N, Wood J, Wesesky M, Jones J, Davis L, Iyengar S, Haas GL, Nimgaonkar VL, Deshpande SN. (2020) Adjunctive yoga training for persons with schizophrenia: who benefits? *Acta Psychiatrica*, in press, doi.org/10.1017/neu.2020.44.

Chakraborty S, Bhatia T, Sharma V, Antony N, Das D, Sahu S, Shriharsh V, Brar JS, Iyengar S, Nimgaonkar VL, Deshpande SN. (2020) Protocol for development of the Indian autism screening questionnaire; the screening version of the Indian scale for Assessment of Autism.

Indian J of Psychological Medicine, doi.org/10.1177/0253717620969068.

Haszto CS, Stanley JA, Iyengar S, Prasad KM. (2020). Regionally distinct alterations in membrane phospholipid metabolism in schizophrenia: A meta-analysis of phosphorus magnetic resonance spectroscopy studies. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 5, 264-280.

Shalev A, Merranko J, Gill MK, Goldstein T, Liao F, Goldstein BI, Hower H, Ryan N, Strober M, Iyengar S, Keller M, Yen S, Weinstock LM, Axelson D, Birmaher B. (2020). Longitudinal Course and Risk Factors Associated with Psychosis in Bipolar Youth. *Bipolar Disorders*, 22, 139-154.

Birmaher B, Merranko JA, Gill MK, Hafeman D, Goldstein T, Goldstein B, Hower H, Strober M, Axelson D, Ryan N, Yen S, Diler R, Iyengar S, Kattan MW, Weinstock L, Keller M. (2020) Predicting Personalized Risk of Mood Recurrences in Youths and Young Adults With Bipolar Spectrum Disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, DOI: 10.1016/j.jaac.2019.12.005.

Keeton, CP, Caporino NE, Kendall PC, Iyengar S, Lee P, Peris T, Sakolsky D, Piacentini J, Compton SN, Albano A, Birmaher B, Ginsburg GS. (2019). Mood and Suicidality Outcomes 3-11 Years Following Pediatric Anxiety Disorder Treatment. *Depression and Anxiety*, 36, 930-940.

Manelis A, Iyengar S, Swartz HA, Phillips ML. (2020) Prefrontal cortical activation during working memory task anticipation contributes to discrimination between bipolar and unipolar depression. *Neuropsychopharmacology*, 45, 956-963.

Bertocci MA, Bergman J, Santos J, Iyengar S, Bonar L, Gill MK, Abdul-waalee H, Bebeko G, Stiffler R, Lockovich J, Aslam H, Ladouceur CD, Merranko J, Diler R, Birmaher B, Versace A, Phillips ML. (2020) Emotional regulation neural circuitry abnormalities in adult Bipolar Disorder: Dissociating effects of long-term depression history from relationships with present symptoms. *Translational Psychiatry*, in press.

Melhem NM, Porta G, Oquendo MA, Zelazny J, Keilp JG, Iyengar S, Burke A, Birmaher B, Stanley B, Mann JJ, Brent DA. (2019) Severity and variability of depression symptoms predicting suicide attempt in high-risk individuals. *JAMA Psychiatry*, 76, 603-613.

Kennard BD, Goldstein T, Foxwell AA, McMakin DL, Wolfe K, Biernesser C, Moorehead A, Douaihy A, Zullo L, Wentroble E, Owen V, Zelazny J, Iyengar S, Porta G, Brent D. (2019) As safe as possible (ASAP): a brief app-supported inpatient intervention to prevent post-discharge suicidal behavior in hospitalized, suicidal adolescents. *American J. Psychiatry*, in press.

Ginsburg GS, Becker EM, Keeton CP, Kendall PC, Iyengar S, Sakolsky D, Albano A, Peris T, Compton SN, Piacentini J. (2018) Results from the Child/Adolescent Anxiety Extended Long-term Study (CAMELS): Primary Anxiety Outcomes. *Journal of the American Academy of Child and Adolescent Psychiatry*, 57, 471-480.

Schwartz KTG, Bowling AA, Dickerson JF, Lynch FL, Brent DA, Porta G, Iyengar S, Weers-

ing R. (2018) The Child and Adolescent Services Assessment: Interrater reliability and predictors of rater disagreement. *Administration and Policy in Mental Health and Mental Health Services Research*, 1-14. doi: 10.1007/s10488-018-0876-8.

Prasad K, Chowdari K, D’Aiuto L, Iyengar S, Stanley J, and Nimgaonkar V. (2018) Neuropil Contraction in relation to Complement C4 Gene Copy Numbers in Independent Cohorts of Adolescent-onset and Young Adult-onset Schizophrenia Patients ? A Pilot Study. *Translational Psychiatry*, 8, 1-12.

Bertocci MA, Hanford L, Manelis A, Iyengar S, Youngstrom E, Gill MK, Monk K, Versace A, Bonar L, Bebko G, Ladouceur CD, Perlman S, Diler R, Horwitz S, Arnold E, Hafeman D, Travis M, Kowatch R, Holland SK, Fristad M, Findling R, Birmaher B, Phillips ML. (2018) Clinical, cortical thickness, and neural activity predictors of future affective lability in youth at risk for bipolar disorder: initial discovery and independent sample replication. *Molecular Psychiatry*, 24, 1856-1867.

Bhatia T, Wood J, Iyengar S, Narayanan SS, Beniwal RP, Prasad KM, Chen K, Yolken RH, Dickerson F, Gur RC, Gur RE, Deshpande SN, Nimgaonkar VL. (2017) Emotion discrimination in humans: its association with HSV-1 infection and its improvement with antiviral treatment. *Schizophrenia Research*, doi.org/10.1016/j.schres.2017.08.001.

Diler RS, Goldstein TR, Hafeman D, Merranko J, Liao F, Goldstein BI, Hower H, Gill MK, Hunt J, Yen S, Keller MB, Axelson D, Strober M, Iyengar S, Ryan ND, Birmaher B. (2017) Distinguishing bipolar depression from unipolar depression in youth: preliminary findings. *J Child and Adolescent Psychopharmacology*, 27, 310-319.

Caporino NE, Sakolsky D, Brodman DM, McGuire JF, Piacentini J, Peris TS, Ginsburg GS, Walkup JT, Iyengar S, Kendall PC, Birmaher B. (2017) Establishing clinical cutoffs for response and remission on the Screen for Child Anxiety Related Emotional Disorders (SCARED), *J American Academy of Child & Adolescent Psychiatry*, 56, 696-702.

Versace A, Sharma V, Bertocci MA, Bebko G, Iyengar S, Dwojak A, Bonar L, Perlman SB, Schirda C, Travis M, Gill MK, Diwadkar VA, Sunshine JL, Holland SK, Kowatch RA, Birmaher B, Axelson D, Frazier TW, Arnold LE, Fristad MA, Youngstrom EA, Horwitz SM, Findling RL, Phillips ML. (2017) Using machine learning and surface reconstruction to accurately differentiate different trajectories of mood and energy dysregulation in youth. *PLoS One*, 12, doi: 10:1371/journal.pone.0180221.

Hafeman D, Merranko J, Goldstein T, Axelson D, Goldstein B, Monk K, Hickey MB, Sakolsky D, Diler R, Iyengar S, Brent D, Kupfer D, Kattan MW, Birmaher B. (2017) Individualizing the bipolar prodrome: person-level risk calculator to predict new-onset bipolar spectrum disorder in youth at familial risk. *JAMA Psychiatry*, 74, 841-847.

Diler RS, Goldstein T, Hafeman D, Rooks B, Sakolsky D, Goldstein BI, Monk K, Hickey MB, Axelson D, Iyengar S, Birmaher B. (2017) Characteristics of depression among offspring at high and low familial risk of bipolar disorder. *Bipolar Disorders*, 19, 344-352.

Weersing VR, Brent DA, Rozenman MS, Gonzalez A, Jeffreys M, Dickerson J, Lynch FL, Porta G, Iyengar S. (2017) Brief behavioral therapy for pediatric anxiety and depression in

primary care: a randomized clinical trial. *JAMA Psychiatry*, 74, 571-578.

Bertocci MA, Bebko G, Versace A, Iyengar S, Bonar L, Forbes EE, Almeida JR, Perlman SB, Schirda C, Travis M, Gill MK, Diwadkar VA, Sunshine JL, Holland SK, Kowatch RA, Birmaher B, Axelson D, Frazier TW, Arnold LE, Fristad MA, Youngstrom EA, Horwitz SM, Findling RL, Phillips ML. (2016) Reward-related neural activity and structure predict future substance use in dysregulated youth. *Psychological Medicine*, 46, 1357-1369.

Bertocci MA, Bebko G, Dwojak A, Iyengar S, Ladouceur CD, Fournier J, Versace A, Perlman SB, Almeida JR, Travis M, Gill MK, Bonar L, Schirda C, Diwadkar VA, Sunshine JL, Holland SK, Kowatch RA, Birmaher B, Axelson D, Horwitz SM, Frazier TW, Arnold LE, Fristad MA, Youngstrom EA, Findling RL, Phillips ML. (2016) Longitudinal relationships among activity in neural circuitry underlying redirection of attention during emotional regulation and symptom severity in youth. *Biological Psychiatry*, 2, 336-345.

Bertocci MA, Bebko G, Versace A, Fournier JF, Iyengar S, Olino T, Bonar L, Almeida JRC, Perlman SB, Schirda C, Travis MJ, Gill MK, Diwadkar VA, Forbes EE, Sunshine JL, Holland SK, Kowatch RA, Birmaher B, Axelson D, Horwitz SM, Frazier TW, Arnold LE, Fristad MA, Youngstrom EA, Findling RL, Phillips ML. (2016) Predicting clinical outcome from reward circuitry function and white matter structure in behaviorally and emotionally dysregulated youth. *Molecular Psychiatry*, 21, 1194-1201.

Weersing VR, Shamseddeen W, Garber J, Hollon SD, Clarke GN, Beardslee WR, Gladstone TR, Lynch FL, Porta G, Iyengar S, Brent DA. (2016) Prevention of depression in at-risk adolescents: predictors and moderators of acute effects. *J American Academy of Child and Adolescent Psychiatry*, 55, 219-226.

Brent DA, Brunwasser SM, Hollon SD, Weersing VR, Clarke GN, Dickerson JF, Beardslee WR, Gladstone TRG, Porta G, Lynch FL, Iyengar S, Garber J. (2015) Effect of a cognitive-behavioral prevention program on depression 6 years after implementation among at-risk adolescents: a randomized clinical trial. *JAMA Psychiatry*, 72, 1110-1118.

Herschell AD, Kolko DJ, Scudder AT, Taber-Thomas S, Schaffner KF, Hiegel SA, Iyengar S, Chaffin M, Mrozowski S. (2015) Protocol for a statewide randomized controlled trial to compare three training models for implementing an evidence-based treatment. *Implementation Science*, 10, 133. doi:10.1186/s13012-015-0324-z.

Goldstein BI, Lotrich F, Axelson DA, Gill MK, Hower H, Goldstein TR, Fan J, Yen S, Diler R, Dickstein D, Strober MA, Iyengar S, Ryan ND, Keller MB, Birmaher B. (2015) Inflammatory markers among adolescents and young adults with bipolar spectrum disorders. *J Clinical Psychiatry*, 76, 1556-1563.

Axelson D, Goldstein B, Goldstein T, Monk K, Yu H, Hickey MB, Sakolsky D, Diler R, Hafeman D, Merranko J, Iyengar S, Brent D, Kupfer D, Birmaher B. (2015) Diagnostic precursors to bipolar disorder in offspring of parents With bipolar disorder: a longitudinal study. *American J Psychiatry*, 172, 638-646.

Brent DA, Melhem NM, Oquendo M, Burke A, Birmaher B, Stanley B, Biernesser C, Keilp J, Kolko D, Ellis S, Porta G, Zelazny J, Iyengar S, Mann JJ. (2015) Familial pathways to

early-onset suicide attempt: a 5.6-year prospective study. *JAMA Psychiatry*. 72, 160-168.

Peris TS, Compton S, Kendall PC, Birmaher B, Sherill J, March J, Gosch E, Ginsburg G, Rynn M, McCracken JT, Keeton C, Sakolsky D, Suveg C, Aschenbrand S, Almirall D, Iyengar S, Walkup J, Albano A, Piacentini J. (2015) Trajectories of change in youth anxiety during cognitive behavior therapy. *J Consulting and Clinical Psychology*. 83, 239-252.

Wallace ML, Iyengar S, Bramoweth AD, Frank E, Germain A. (2015) Clarifying heterogeneity of daytime and nighttime symptoms of post-traumatic stress in combat veterans with insomnia. *Military Psychology*, 27, 212-222.

Maoz H, Goldstein T, Axelson DA, Goldstein B, Fan J, Hickey MB, Monk K, Sakolsky D, Diler RS, Iyengar S, Kupfer DJ, Birmaher B. (2014) Dimensional psychopathology in preschool offspring of parents with bipolar disorder. *J Child Psychology and Psychiatry*, 55, 144-153.

Birmaher B, Gill MK, Axelson DA, Goldstein BI, Goldstein TR, Yu H, Liao F, Iyengar S, Diler RS, Strober M, Hower H, Yen S, Hunt J, Merranko JA, Ryan ND, Keller MB. (2014) Longitudinal trajectories and associated baseline predictors in youth with bipolar spectrum disorders. *American J Psychiatry*, 171, 990-999.

Sala R, Strober MA, Axelson DA, Gill MK, Castro-Fornieles J, Goldstein TR, Goldstein BI, Ha W, Liao F, Iyengar S, Yen S, Hower H, Hunt J, Dickstein DP, Ryan ND, Keller MB, Birmaher B. (2014) Effects of Comorbid Anxiety Disorders on the Longitudinal Course of Pediatric Bipolar Disorder. *J American Academy of Child and Adolescent Psychiatry*, 53, 72-81.

Ballester J, Goldstein B, Goldstein TR, Yu H, Axelson D, Monk K, Hickey MB, Diler R, Sakolsky DJ, Sparks G, Iyengar S, Kupfer DJ, Brent DA, Birmaher B. (2014) Prospective longitudinal course of aggression among adults with bipolar disorder. *Bipolar Disorders*, 3, 262-269.

Ginsburg GS, Becker EM, Keeton CP, Sakolsky DS, Piacentini J, Albano AM, Compton SN, Iyengar S, Sullivan K, Caporino N, Peris T, Birmaher B, Rynn M, March J, Kendall PC. (2014). Naturalistic follow-up of youths treated for pediatric anxiety disorders. *JAMA Psychiatry*, 71, 310-318.

Goldstein BI, Strober M, Axelson D, Goldstein TR, Gill MK, Hower H, Dickstein D, Hunt J, Yen S, Kim E, Ha W, Liao F, Fan J, Iyengar S, Ryan ND, Keller MB, Birmaher B. (2013) Predictors of first-onset substance use disorders during the prospective course of bipolar spectrum disorders in adolescents. *J American Academy of Child and Adolescent Psychiatry*, 52, 1026-1037.

Prasad KM, Eack SM, Keshavan MS, Yolken RH, Iyengar S, Nimgaonkar VL. (2013) Antiherpes virus-specific treatment and cognition in schizophrenia: a test-of-concept randomization double-blind placebo-controlled trial. *Schizophrenia Bulletin*, 39, 857-866.

Beardslee WR, Brent DB, Weersing VR, Clarke GN, Porta G, Hollon SD, Gladstone TRG, Gallop R, Lynch FL, Iyengar S, DeBar L, Garber J. (2013) Prevention of depression in at-risk

adolescents: longer-term effects. *JAMA Psychiatry*. 70, 1161-1170.

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Ballester J, Goldstein T, Goldstein B, Obreja E, Axelson D, Monk K, Hickey MB, Iyengar S, Farchione T, Kupfer DJ, Brent D, Birmaher B. (2012) Is bipolar disorder specifically associated with aggression? *Bipolar Disorders*, 14, 283-290.

Maalouf FT, Porta G, Vitiello B, Emslie G, Mayes T, Clarke G, Wagner KD, Asarnow JR, Spirito A, Keller M, Birmaher B, Ryan ND, Shamseddeen W, Iyengar S, Brent DA. (2012) Do sub-syndromal manic symptoms influence outcome in treatment resistant depression in adolescents? A latent class analysis from the TORDIA study. *J Affective Disorders*, 138, 86-95.

Ginsburg GS, Kendall PC, Sakolsky D, Compton SN, Piacentini J, Albano AM, Walkup JT, Sherrill J, Coffey KA, Rynn MA, Keeton CP, McCracken JT, Bergman L, Iyengar S, Birmaher B, March J. (2011) Remission after acute treatment in children and adolescents with anxiety disorders: findings from the CAMS. *J Consulting and Clinical Psychology*, 79, 806-813.

Sakolsky DJ, Perel JM, Emslie GJ, Clarke GN, Wagner KD, Vitiello B, Keller MB, Birmaher B, Ryan ND, McCracken JT, Strober MJ, Iyengar S, Porta G, Brent DA. (2011) Antidepressant exposure as a predictor of clinical outcomes in the Treatment of Resistant Depression in Adolescents (TORDIA) study. *J Clinical Psychopharmacology*, 32, 92-97.

Axelson DA, Birmaher B, Strober MA, Goldstein BI, Ha W, Gill MK, Goldstein TR, Yen S, Hower H, Hunt JI, Liao F, Iyengar S, Dickstein D, Kim E, Ryan ND, Frankel E, Keller MB. (2011) Course of subthreshold bipolar disorder in youth: diagnostic progression from bipolar disorder not otherwise specified. *J American Academy of Child and Adolescent Psychiatry*, 50, 1001-1016.

Schlund MW, Cataldo MF, Siegle GJ, Ladouceur CD, Silk JS, Forbes EF, McFarland A, Iyengar S, Dahl RE, Ryan ND. (2011) Pediatric functional magnetic resonance neuroimaging: a conceptual framework and tactics for encouraging task compliance. *Behavioral and Brain Functions*, 7, 1-10.

Goldstein TR, Obreja M, Shamseddeen W, Iyengar S, Axelson DA, Goldstein BI, Monk K, Hickey MB, Sakolsky D, Kupfer DJ, Brent DA, Birmaher B. (2011) Risk for suicidal ideation among the offspring of bipolar parents: results from the Bipolar Offspring Study (BIOS). *Archives of Suicide Research*, 15, 207-222.

Vitiello B, Emslie G, Clarke G, Wagner KD, Asarnow JR, Keller M, Birmaher B, Ryan N, Kennard B, Mayes T, DeBar L, Lynch F, Dickerson J, Strober M, Suddath R, McCracken JT, Spirito A, Onorato M, Zelazny J, Porta G, Iyengar S, Brent D. (2011) Long-term outcome of adolescent depression initially resistant to SSRI treatment. *J Clinical Psychiatry*, 72, 388-396.

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- Compton SN, Walkup JT, Albano AM, Piacentini JC, Birmaher B, Sherrill JT, Ginsburg GS, Rynn MA, McCracken JT, Waslick BD, Iyengar S, Kendall PC, March JS. (2010) Child/Adolescent Anxiety Multimodal Study (CAMS): rationale, design, and methods. *Child and Adolescent Psychiatry and Mental Health*, 4, 1-15.
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- Birmaher B, Axelson D, Goldstein B, Monk K, Kalas C, Obreja M, Hickey MB, Iyengar S, Brent DA, Shamseddeen W, Diler R, Kupfer D. (2010) Psychiatric disorders in preschool offspring of parents with bipolar disorder: the Pittsburgh Bipolar Offspring Study (BIOS) *American J Psychiatry*, 167, 321-330.
- Birmaher B, Axelson D, Monk K, Kalas C, Goldstein B, Hickey MB, Obreja M, Ehmann M, Iyengar S, Shamsedden W, Kupfer D, Brent D. (2008) Lifetime psychiatric disorders in school-aged offspring of parents with bipolar disorder. *Archives of General Psychiatry*. 66, 287-296
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Disorders, 102, 125-130.

Campo JV, Bridge J, Lucas A, Savorelli S, Walker L, Di Lorenzo C, Iyengar S, Brent DA (2007) Physical and Emotional Health of Mothers of Youth With Functional Abdominal Pain. *Archives of Pediatric and Adolescent Medicine*, 161, 131-137.

Rende R, Birmaher B, Axelson D, Strober M, Gill MK, Valeri S, Chiappetta L, Ryan ND, Leonard H, Hunt J, Iyengar S, Keller M. (2007) Childhood-onset bipolar disorder: evidence for increased familial loading of psychiatric illness. *J American Academy of Child and Adolescent Psychiatry*, 46, 197-204.

Rende R, Birmaher B, Axelson D, Strober M, Gill MK, Valeri S, Chiappetta L, Ryan ND, Leonard H, Hunt J, Iyengar S, Keller M. (2006) Psychotic symptoms in pediatric bipolar disorder and family history of psychiatric illness. *J Affective Disorders*, 96, 127-131.

Weersing VR, Iyengar S, Kolko DJ, Birmaher B, Brent DA. (2006) Effectiveness of cognitive-behavioral therapy for adolescent depression: a benchmarking investigation. *Behavioral Therapy*, 37, 36-48.

Axelson D, Strober M, Gill MK, Valeri S, Chiappetta L, Ryan ND, Leonard H, Hunt J, Iyengar S, Bridge J, Keller M. (2006) Phenomenology of Children and Adolescents with Bipolar Spectrum Disorders. *Archives of General Psychiatry*, 63, 1139-1148.

Strober M, Birmaher B, Ryan ND, Axelson D, Valeri S, Leonard H, Iyengar S, Gill MK, Hunt J, Keller M. (2006) Pediatric bipolar disease: current and future perspectives for study of its long-term course and treatment. *Bipolar Disorders*, 8, 311-321.

Birmaher B, Axelson D, Strober M, Gill MK, Valeri S, Chiappetta L, Ryan ND, Leonard H, Hunt J, Iyengar S, Keller M. (2006) Clinical Course of Children and Adolescents With Bipolar Spectrum Disorders. *Archives of General Psychiatry*, 63, 175-183.

Krimer L, Zaitsev A, Czanner G, Kroner S, Gonzalez-Burgos G, Povysheva N, Iyengar S, Barrioneuvo G, Lewis D. (2005) Cluster analysis-based physiological classification and morphological properties of inhibitory neurons in layers 2-3 of monkey dorsolateral prefrontal cortex. *J Neurophysiology*, 94, 3009-3022.

Campo J, Bridge J, Ehmann M, Altman S, Lucas A, Birmaher B, DiLorenzo C, Iyengar S, Brent D. (2004) Recurrent abdominal pain, anxiety, and depression in primary care. *Pediatrics*, 113, 817-824.

DeBellis MD, Keshavan MS, Shifflett H, Iyengar S, Beers SR, Hall JD, Moritz, G. (2002) Brain structures in pediatric maltreatment-related posttraumatic stress disorder: a sociodemographically matched study. *Biological Psychiatry*, 52, 1066-1078.

DeBellis MD, Keshavan MS, Dahl RE, Birmaher B, Hall J, Frustaci K, Boring AM, Shifflett H, Iyengar S, Ryan N. (2002) Superior temporal gyrus volumes in pediatric generalized anxiety disorder. *Biological Psychiatry*, 51, 553-562.

DeBellis MD, Keshavan MS, Frustaci K, Shifflett H, Iyengar S, Beers SR, Hall J. (2002) Superior temporal gyrus volumes in maltreated children and adolescents with PTSD. *Biological Psychiatry*, 51, 544-552.

- Birmaher B, Brent DA, Kolko D, Baugher M, Bridge J, Holder D, Iyengar S, Ulloa RE. (2000) Clinical outcome after short-term psychotherapy for adolescents with major depressive disorder. *Archives of General Psychiatry*, 57, 29-36.
- 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.
- Kovacs M, Iyengar S, Mukerji P, Drash A. (1996) Psychiatric disorder and metabolic control among youths with IDDM. *Diabetes Care*, 19, 318-323.
- Goldston D, Kovacs M, Obrosky MS, Iyengar S. (1995) A longitudinal study of life events and metabolic control among youths with insulin-dependent diabetes mellitus. *Health Psychology*, 14, 409-414.
- 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.
- Ryan ND, Dahl RE, 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. *J American Academy of Child and Adolescent Psychiatry*, 33, 824-833.
- Kovacs M, Goldston D, Obrosky MS, Iyengar S. (1992) Intellectual development and academic performance of children with insulin-dependent diabetes mellitus: a longitudinal study. *Developmental Psychology*, 28, 676-684.
- Kovacs M, Goldston D, Obrosky DS, Iyengar S. (1992) Prevalence and predictors of pervasive noncompliance with medical treatment among youths with insulin-dependent diabetes mellitus. *J American Academy of Child and Adolescent Psychiatry*, 31, 1112-1119.
- Ryan ND, 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.
- Ryan ND, Williamson D, Iyengar S, Orvashel H, Reich T, Dahl RE, Puig-Antich, J. (1992) A secular increase in child and adolescent onset affective disorder. *J American Academy of Child and Adolescent Psychiatry*, 31, 600-605.
- Kovacs M, Iyengar S, Goldston D, Obrosky MS, Stewart J, Marsh J (1990) Psychological functioning of children with insulin-dependent diabetes mellitus. *J Pediatric Psychology*, 15, 619-632.
- Kovacs M, Iyengar S, Goldston D, Obrosky MS, Stewart J, Marsh J. (1990) Psychological functioning among mothers of children with insulin-dependent diabetes mellitus: a longitudinal study. *J Consulting and Clinical Psychology*, 58, 189-195.
- Antoinette T, Iyengar S, Puig-Antich J. (1990) Is locked seclusion necessary for children under the age of 14 ? *American J Psychiatry*, 147, 1283-1289.
- Puig-Antich J, Goetz D, Davies M, Kaplan T, Davies S, Ostrow L, Asnis L, Twomey J, Iyen-

gar S, Ryan ND. (1989) A controlled family history study of pre-pubertal major depressive disorder. *Archives of General Psychiatry*, 46, 406-418.

Ryan ND, 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.

C. Book Reviews

Iyengar S. (1997) *Statistical Inference-Based on the Likelihood* by A Azzalini. *J American Statistical Association*. 92, 1220-1221.

Iyengar S. (1997) *A Course in Stochastic Processes* by D Bosq and HT Nguyen. *J American Statistical Association*. 92, 1651.

Iyengar S. (1998) *Multivariate Models and Dependence Concepts* by H Joe. *Technometrics*. 40, 348-349.

Iyengar S. (2013) *Understanding the New Statistics: Effect Sizes, Confidence Intervals, and Meta-Analysis* by G Cumming. *J American Statistical Association*. 108, 357-358.

D. Mathematical Reviews

MR1125747, MR1165229, MR1165927, MR1199789, MR1243519, MR1275050, MR1326530, MR1343009, MR1371964, MR1391171, MR1408130, MR1414141, MR1436648, MR1659047, MR1448309, MR1659219, MR1710638, MR1775066, MR1820144, MR1869859, MR1891744, MR1917421, MR1917800, MR1938944, MR1968953, MR1987321, MR2001302, MR1957198, MR2019130, MR2045318, MR2054802, MR2151558, MR2225067, MR2275420, MR2397501, MR2414357, MR2444331, MR2481572, MR2525259, MR2665482, MR2773782, MR2855519, MR3041264, MR3088476, MR3092421, MR3252780, MR3188354, MR3299751, MR3252646, MR3338024, MR3443491, MR3493328, MR3684650, MR3740528, MR3851765, MR3873920, MR3905447, MR4030297.

ADVISING AND TEACHING

A. Postdoctoral Fellows (years, present position)

Tuhao Chen (1998-2000, Professor, Mathematics and Statistics, Bowling Green State U)

Jungeun Heo (2000-2002, Staff researcher, KISTI, South Korea)

Paul Mullaney (2005-2006, Senior Research Scientist, Sensory Inc., Denver, CO)

Reuben Muchemedzi (2006-2007, deceased 2007)

Edward Bein (2007-2009, Associate, Abt Associates, New York, NY)

Scott Compton (2007-2013, Associate Professor, Psychiatry and Psychology, Duke U)

Mengyuan Zhao, (2010-2011, VP, Business Analytics Manager, JP Morgan & Co.)

Meredith Wallace (2010-2016, Associate Professor, U Pitt Medical School)

B. PhD Students

Primary adviser for 28 students (graduation year, current position; * for Mellon Fellow):

Qiming Liao (1995, Head, Oncology Statistics, AbbVie)

Sa Shen (1997, Director, Biostatistical Services, University of Illinois, Urbana-Champaign)

Silviu Bacanu (1998, Associate Professor, Psychiatry, Virginia Commonwealth U)

Aurele Hounghbedji (2000, co-adviser; Risk Manager, International Financial Corp.)

Oded Meyer (2000, Teaching Professor, Mathematics and Statistics, Georgetown U)
 Youngju (Lee) Nielsen (2001, Assistant Professor, Sungkyunkwan U)
 Gabriela Czanner (2004, Senior Lecturer, Liverpool John Moores U)
 Melissa Ziegler (2006, Senior Biostatistician, College of Health Sciences, U Delaware)
 Lulu Ren (2006, Director of Biostatistics, Esperion Therapeutics)
 Adriana Lopez (2008, Lecturer, Universidad Pedagogica y Tecnologica de Colombia)
 Wonho Ha (2009, Statistician, Proctor and Gamble)
 Kaleab Abebe (2009, Associate Professor, U Pitt School of Medicine)
 Yao Zhang (2010, Vice President, Core Modeling, JP Morgan)
 Mengyuan Zhao (2010, VP, Business Analytics Manager, JP Morgan Chase)
 Mihaela Obreja (2010, co-adviser; Senior Manager, Amgen)
 Nan Zhou (2011, Senior Quantitative Strategist, Quest Partners)
 Hao Wang (2011, co-adviser; Senior Biostatistics Manager, Kite Pharma)
 Wenjing Qi (2014, Postdoctoral Associate, Duke University)
 Jieyu Fan (2014, Area Vice President, Advanced Analytics, Data Science, John Hancock)
 Scott Rothenberger (2014, co-adviser; Assistant Professor, U Pitt Medical School)
 Martin Houze (2015, co-adviser; Senior Decision Analyst, Gateway Health)
 *Burcin Simsek (2016, Senior Research Biostatistician, Bristol-Myers-Squibb)
 Yafei Wei (2016, Software Engineer, LinkedIn)
 *Brian McGill (2017, Senior Data Scientist, Capital One)
 Zhang Zhang (2017, Data Scientist, IQVIA)
 *Bowen Yi (2018, Quantitative Analytics & Model Development Analyst, PNC Bank)
 Xiaonan Zhu (2019, Senior Statistician, U Pitt School of Public Health)
 Xing Gao (2020, Senior Specialist, Model Development, BNY-Mellon)
 Now advising *Anirban Mitra, Zhexuan Li.

External member of PhD thesis committees in Biomedical Engineering, Computer Science, Economics, Education, History and Philosophy of Science, Industrial Engineering, Information Science, Mathematics, and Philosophy at University of Pittsburgh.

External member of PhD thesis committees in Department of Statistics, Carnegie Mellon University; and Mathematics and Statistics, University of Canterbury, Christchurch, NZ; Pondicherry University, India.

C. Others

Masters thesis adviser for Nelly Leon (1985).

Adviser for undergraduate projects and First Experiences in Research:

Margaret Kenney (2002), Janine Wilcox (2003), Laura Riley (2005), Helena Tzou (2007), Niva Pandya (2019), Suprotik Debnath (2019).

Mentor for three high school students:

Rachel Puda (1999), Kazuma Parkinson (2017), Joey Breslau (2019).

E. Courses Taught

Undergraduate: Introductory Statistics, Statistical Computing, Multivariate Analysis, Intermediate Probability and Statistics, Stochastic Processes.

Masters: Intermediate Probability, Intermediate Statistics, Linear Models, Data Mining, Meta-analysis, Discriminant Analysis, Statistical Consulting.

Doctoral: Probability, Statistics, Asymptotics, Stochastic Differential Equations, Data Mining, Meta-analysis.

GRANTS, FELLOWSHIPS, CONTRACTS

NIMH, 2014-2024. Reward, Pathophysiologic Dimensions and Psychological Distress in Young Adults. [PI: Phillips]

NIMH, 2014-2017. A Statewide Trial to Compare Three Training Models. [PI: Herschell]

NIMH, 2008-2017. Course and Outcome of Bipolar Illness in Youth [PI: Birmaher]

NIMH, 2008-2013. Transdisciplinary Studies of CBT for Anxiety in Youth. [PI: Ryan]

NIMH, 2002-2007. Neurobehavioral changes in pediatric affective disorders. [PI: Ryan]

NIMH, 2002-2007. Advanced center for intervention and services research. [PI: Brent]

NIH, 2002-2006. Modeling the acute inflammatory response. [PI: Chow]

NIH, 2001-2004. The analysis of nonstationary point process data. [PI: Kass]

NIMH, 1993-2003. Behavioral neuroscience and schizophrenia. [PI: Lewis]

NIMH, 1997-2002. The psychobiology of childhood anxiety and depression. [PI: Ryan]

NIMH, 1997-2002. CADPRC for early-onset affective and anxiety disorders. [PI: Brent]

NIMH, 1997-2000. Familial pathways of early onset suicide attempt. [PIs: Brent, Mann]

NIMH, 1996-1999. Adolescent depression: treatment and outcome. [PI: Brent]

ONR, 1993-1996. Boundary crossing problems with applications to neural sciences. [PI]

NSF, SCREMS, 1994-1995. [PI: T Savits]

ONR, 1991-1994. Statistical problems in single neuron activity. [PI]

ONR, 1989-1991. Statistical methods for the neurosciences. [PI]

NIMH, 1991-1996. Psychobiology of depression in children and adolescents. [PI: Ryan]

Power Systems Research, Inc. 1989. Development of analytical techniques to assist in evaluation of power system composite reliability indices. [PI: Mazumdar]

NIMH, 1986-1990. Psychobiology of depression in children & adolescents. [PI: Puig-Antich]

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

INVITED TALKS

A. Meetings

Conference on Lifetime Data Science, Pittsburgh, PA, May, 2019.

ICMR, New Delhi, India, March 2019.

CDI, Western Psychiatric Institute and Clinic, Pittsburgh, PA, February 2019.

CMStatistics, Pisa, Italy, December 2018.

ICSA, Qingdao, China, July 2018.

P.R. Krishnaiah Memorial Lecture, Penn State University, May 2017.

Mathematics Department, University of Pittsburgh, March 2017.

TSIMF, Sanya, China, December 2016.

ICSA, Shanghai, China, December 2016.
ICJMS 2016, Pondicherry, India, August 2016.
ICJMS 2015, Antalya, Turkey, May 2015.
Joint Statistical Meetings, Boston, MA, August 2014.
Modeling Neural Activity, Lihue HI, June 2013.
BIOSTEC conference, Vilamoura, Portugal. February, 2012 (M. Wallace).
Congress on Advances in Nuclear Power Plants, Nice, France, May 2011 (C. Frepoli).
Coding International Workshop, Tainan, Taiwan. May, 2009.
Association for Behavioral and Cognitive Therapies, Orlando, FL. November, 2008.
American Physical Association, Denver, CO, March 2007.
IMA workshop on Biology, Dynamics, and Statistics, Minneapolis MN, August 2007.
ISBA-IMS Second World Meeting, Bormio, Italy, 2005 (D. Lee).
Point Processes and Applications. BIRS, Banff Canada, June 2003.
New Clinical Drug Evaluation Unit. Boca Raton FL, June 2002.
Interface 2002, Montreal, CA, April, 2002.
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. Chicago IL, August 1996.
Conference on Information Processing in Cells and Tissues. Liverpool UK, 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

Bowling Green State University, Statistics Department, September 2020.
University of Buffalo, Biostatistics Department, March 2018.
University of Warwick, Statistics Department, December 2016.
Oxford University, Statistics Department, November 2016.
London School of Economics, Statistics Department, October 2016.
UC Berkeley, Statistics Department, April 2016.
UC Davis, Statistics Department, February 2016.
Temple University, Statistics Department, October 2014.
University of Pittsburgh, Cognitive Brown Bag, LRDC, September 2014.

Akdeniz University, Mathematics Department, May 2014.
University of Maryland, Baltimore County, April 2014.
IIT Ropar, Humanities and Social Sciences, May 2013.
Indian Institute of Science, Center for Neuroscience, May 2013.
Howard Hughes Medical Institute (HHMI) at Janelia Farm, January, 2011.
Columbia University, Statistics Department, October 2007.
Carnegie Mellon University and University of Pittsburgh, CNBC, February 2006.
Bowling Green State University, Statistics Department, April 2005.
Massey University, Statistics Department, May 2004.
Victoria University, Statistics Department, July 2004.
Massey University at Albany, Statistics Department, June 2004.
University of Canterbury, Department of Mathematics and Statistics, May 2004.
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.
Carnegie Mellon University and University of Pittsburgh, CNBC, February 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 County, 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.
University of Pittsburgh, Department of Mathematics and Statistics, March 1982.

PROFESSIONAL ACTIVITY

Served on grant review panels for the National Institute of Health since 2000.
External reviewer for many promotion and tenure cases at other universities.
Member, committee to investigate research misconduct at another university.
Member, NZIMA Program on Hidden Markov Models steering committee, 2004-2005.
Reviewed reports for the National Academy of Sciences, the American Heart Association; and proposals to National Science Foundation, National Institutes of Health, Air Force Office of Scientific Research, MITACS (Canada), Marsden Grant (New Zealand).

Refereed articles for *Annals of Statistics*, *American J Psychiatry*, *Archives of General Psychiatry*, *Biometrics*, *Biostatistics*, *IEEE Transactions on Molecular, Biological and Multiscale Communications*, *JAMA Psychiatry*, *J American Statistical Association*, *J Computational Neuroscience*, *J Multivariate Analysis*, *J Neuroscience Methods*, *Neural Computation*, *Proceedings of the National Academy of Sciences*, *SIAM J Scientific Computing*, *Statistical Science*, *Statistics in Medicine*, *Technometrics*.

Taught meta-analysis short course with Ingram Olkin and Thomas Chalmers at University of Pittsburgh, May 1991; at Upjohn Corporation, Kalamazoo MI, October 1991.

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

UNIVERSITY SERVICE

Member, Mellon Fellowship Selection Committee, 2015-2016, 2020-2021.

Member, Provost's Data Science Task Force, 2019-2020.

Member, University Council on Graduate Study, 2017-2019.

Member, DSMB for studies at U Pittsburgh School of Medicine, since 2013.

Faculty adviser for Ankur, the Indian Graduate Student Association, 2012-2015.

Member, Arts and Sciences Tenure Selection Committee, 2011-2015.

Member, *ad hoc* Arts & Sciences promotion and tenure committees, since 1997.

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

Planning and Budgeting System *ad hoc* 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.

CONSULTING

Charles River Associates, Boston, MA, 2017-2018.

Duquesne Light, Pittsburgh, PA, 2015.

Westinghouse LOCA Integrated Services, Cranberry, PA, 2007-2012.

Allegheny General Hospital, Department of Psychiatry, Pittsburgh, PA, 2001-2008.

NIOSH, Morgantown, WV, 2002-2005.

Carnegie Mellon University, Microwave Processing Center, Pittsburgh, PA, 2002.

Westinghouse Government Services, Electro Mechanical Division, Cheswick, PA, 2001.