Armin Schwartzman

Contact Information

University of California, San Diego
Division of Biostatistics
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Personal

Born 10 June 1972, Lima, Perú. Married, three children.

Research Interests

- *Methodological*: Signal and image analysis; high-dimensional data; smooth Gaussian random fields; large-scale multiple testing; manifold-valued data; functional data analysis; time series.
- *Scientific*: Brain imaging; neuroscience; cancer imaging; genomics; environmental remote sensing; climate research.

Education

Ph.D. Statistics, **Stanford University** June 2006
- Advisers: Bradley Efron and Jonathan E. Taylor
- Thesis: Random ellipsoids and false discovery rates: statistics for diffusion tensor imaging data

B.S. Science Education (*Summa Cum Laude*), **Technion - Israel Inst. of Tech.** Feb. 2001
M.S. Electrical Engineering, **California Institute of Technology** June 1996
B.S. Electrical Engineering (*Summa Cum Laude*), **Technion - Israel Inst. of Tech.** May 1995

Academic Appointments

University of California, San Diego, La Jolla, CA, USA
Professor, Division of Biostatistics and Halıcıoğlu Data Science Institute July 2019 - Present

University of California, San Diego, La Jolla, CA, USA
Associate Professor, Division of Biostatistics Feb. 2016 - June 2019

North Carolina State University, Raleigh, NC, USA
Associate Professor, Dept. of Statistics Aug. 2013 - Jan. 2016

Harvard School of Public Health, Boston, MA, USA
Assistant Professor, Dept. of Biostatistics June 2007 - July 2013

Dana-Farber Cancer Institute, Boston, MA, USA
Assistant Professor, Dept. of Biostatistics and Comp. Biology June 2007 - July 2013

Dana-Farber Cancer Institute, Boston, MA, USA
Research Fellow, Dept. of Biostatistics and Comp. Biology Sep. 2006 - June 2007

Visiting Academic Appointments

Technion - Israel Inst. of Tech., Haifa, Israel
Visiting Professor, Faculty of Industrial Eng. and Mgmt.
Mar. - May 2009, Sep. 2015 - Jan. 2016, July - Aug. 2017, July - Aug. 2019

Technion - Israel Inst. of Tech., Haifa, Israel
Visiting Professor, Faculty of Electrical Engineering Sep. 2012 - July 2013

Professional Experience

DaimlerChrysler Research and Technology North America, Palo Alto, CA, USA
Intern July - Sep. 2003
Developed multi-target tracking techniques for real time reconstruction of traffic environment.

Biosense Webster (Israel) Ltd., Haifa, Israel
Algorithm Developer and Researcher Mar. 1999 - Apr. 2001
Statistical analysis of shape of endocardial electrograms in relation to ischemic heart disease.

Rockwell Semiconductor Systems, San Diego, CA, USA
Systems Engineer, R&D Aug. 1996 - June 1998
Designed digital demodulators and decoders for digital satellite and cable communications.

Research Grants (Leading role)

15. National Inst. of Mental Health (NIMH) grant R01MH128923 Role: PI
Spatial Estimating The Fraction of Variance Explained by Genetics and Neuroanatomy in Neuropsychiatric Conditions
Award: $2.926M for the period 08/22-06/27.

14. National Inst. of Biomed. Imaging and Bioeng. (NIBIB) grant R01EB026859 Role: PI
Spatial Inference Methods for Image Analysis
Award: $1.716M for the period 05/19-04/23.

13. Google Faculty Research Award Role: PI
Estimation of mountain valley glaciers using Google Earth Engine
Award: $61K for the period 05/19-04/21.

12. National Science Foundation (NSF) grant DMS1811659 Role: Co-PI
Critical Points and Excursion Probability of Random Fields
Award: $75K for the period 07/18-06/22.

11. National Cancer Institute (NCI) grant R01CA157528 Role: PI
Multiple Testing Methods for Random Fields and High-Dimensional Dependent Data
Award: $855K for the period 06/12-03/19.

10. UC San Diego Frontiers of Innovation Scholars Program (FISP) Role: PI
Image analysis in liver cancer research
Award: $25K for the period 07/17-07/18.

9. National Inst. of Biomed. Imaging and Bioeng. (NIBIB) grant R21EB013795 Role: PI
Voxelwise Analysis of Imaging Response to Therapy in Neuro-Oncology
Award: $275K for the period 09/12-08/15.

8. National Inst. of Biomed. Imaging and Bioeng. (NIBIB) grant R21EB012177 Role: Co-PI
Statistical Methods for Brain Image Registration and Tensor-Based Morphometry
Award: $91K for the period 03/11-02/13.

7. Dana Fund, Dana-Farber Cancer Institute Role: PI
Statistical Parametric Imaging for Response Assessment of Novel Therapy in Neuro-Oncology
Award: $75 K for the period 09/10-09/11.

6. Career Incubator Fund, Harvard School of Public Health. Role: PI
Fresh water and climate change: estimation of mountain glacier retreat via analysis of satellite imagery
Award: $50K for the period 09/10-09/11.

5. William F. Milton Fund, Harvard School of Public Health Role: PI
Statistical Peak Detection for Biomarker Discovery
Award: $40K for the period 01/10-12/10.

4. Northern California Institute for Research and Education Resource for MRI of Neurodegenerative Disorders, Univ. of California, San Francisco Role: Co-I (Subcontract)
Statistical methodology for the analysis of multimodality imaging data
Amount: $20K for the period 09/09-12/10.

3. Seed Grant, Harvard Center for the Environment Role: PI
Climate change and the availability of fresh water: quantitative estimation of trends in the area and volume of mountain glaciers through analysis of satellite imagery
Award: $30K for the period 04/09-04/10.

2. National Cancer Institute grant P01 CA134294-01 Role: Co-Project Leader
Statistical Informatics for Cancer Research
Award: $90K for the period 09/08-06/13.

1. Claudia Adams Barr Program in Cancer Research, Dana-Farber Cancer Institute Role: PI
Statistical Peak Detection in Cancer Research
Award: $137K for the period 07/08-06/10.

Outside Contracts (Leading role)

1. City of San Diego Role: PI
Pathogen Monitoring Study at the North City Water Reclamation Plant: Statistics Review and Analysis Report
Award: $15K for the period 01/18-05/18.

Honors and Awards (Excluding research grants)

- UC San Diego Hispanic Center of Excellence (HCOE) Fellow January 2018
- Travel Award, Human Brain Mapping Conference, Budapest June 2004
- Teaching Award, Department of Statistics, Stanford University June 2003
- William R. Kimbal and Sara Heart Stanford Graduate Fellowship Award February 2001
- President's Academic List of Honors, Technion May 1992 and May 1994
- Dean's Academic List of Honors, Technion May 1993
- Academic Gold Medal (Valedictorian), León Pinelo High School, Lima, Perú December 1988

Media appearances

- Research Features Magazine, feature article Published Nov. 30, 2017
- Interview by Keith Pannell at Science Studio, KTEP - El Paso, TX Aired Sep. 3, 2017

Patents

- **Schwartzman A**, Reisfeld D. Method and apparatus for characterizing cardiac tissue from local electrograms. U.S. Patent No. 6,725,085, 2004.

Articles Accepted for Publication (* indicates supervisee)

67. Christopher M, Hoseini P, Walker E, Proudfoot JA, Bowd C, Fazio MA, Girkin CA, De Moraes CG, Liebmann JM, Weinreb RN, **Schwartzman B**, Zangwill LM, Welsbie DS. A Deep Learning Approach to Improve Retinal Structural Predictions and Aid Glaucoma Neuroprotective Clinical Trial Design, *Ophthalmology Glaucoma* 2022. `https://doi.org/10.1016/j.ogla.2022.08.014.`

Refereed Publications (Methodological journals) (* indicates supervisee)

66. Telschow F*, Davenport S*, **Schwartzman A**. Functional delta residuals and applications to simultaneous confidence bands of moment based statistics. *Journal of Multivariate Analysis* 2022; 192, 105085.

65. Telschow F*, **Schwartzman A**. Simultaneous confidence bands for functional data using the Gaussian Kinematic formula. *Journal of Statistical Planning and Inference* 2022; 216: 70-94.

64. Groisser D, Jung S, **Schwartzman A**. Uniqueness questions in a scaling-rotation geometry on the space of symmetric positive-definite matrices. *Differential Geometry and its Applications* 2021; 79: 101798.

63. Cheng D, Zhibing He, **Schwartzman A**. Multiple Testing of Local Maxima for Detection of Change Points. *Electronic Journal of Statistics* 2020; 14(2): 3705-3729.

62. Azriel D, **Schwartzman A**. Estimation of linear projections of non-sparse signals for high-dimensional Gaussian observations with strong dependence. *Electronic Journal of Statistics* 2020; 14: 174-206.

61. Cheng D, **Schwartzman A**. On critical points of Gaussian random fields under diffeomorphic transformations. *Statistics and Probability Letters* 2020; 158: 108672.

60. Cheng D, Cammarota V, Fantaye Y, Marinucci D, **Schwartzman A**. Multiple testing of local maxima for detection of peaks on the (celestial) sphere. *Bernoulli* 2020; 26(1): 31-60.

59. **Schwartzman A**, Schork A, Zablocki R, Thompson WK. A simple, consistent estimator of heritability from genome-wide association studies. *Annals of Applied Statistics* 2019; 13(4): 2509-2538.

58. Li M*, **Schwartzman A**. Standardization of Multivariate Gaussian Mixture Models for Background Adjustment of PET Images in Brain Oncology. *Annals of Applied Statistics* 2018; 12(4): 2197-2227.

57. Sommerfeld M*, Sain S, **Schwartzman A**. Asymptotic Confidence Regions for Spatial Excursion Sets, with an Application to Climate. *Journal of the American Statistical Association* 2018; 113(523): 1327-1340.

56. Cheng D, **Schwartzman A**. Expected Number and Height Distribution of Critical Points of Smooth Isotropic Gaussian Random Fields. *Bernoulli* 2018; 24(4B), 3422-3446.

55. Lee HN*, **Schwartzman A**. Eigenvalue and Eigenvector Inference for Exponential Families of Random Symmetric Matrices. *Journal of Multivariate Analysis* 2017; 162, 152-171.

54. French J, McGinnis S, **Schwartzman A**. Assessing NARCCAP climate model effects using spatial confidence regions. *Adv. Stat. Clim. Meteorol. Oceanogr.* 2017; 3: 67-92.

53. Cheng D*, **Schwartzman A**. Multiple Testing of Local Maxima for Detection of Peaks in Random Fields. *Annals of Statistics* 2017; 45(2): 529-556.

52. Groisser D, Jung S, **Schwartzman A**. Geometric foundations for scaling-rotation statistics on symmetric positive definite matrices: minimal smooth scaling-rotation curves in low dimensions. *Electronic Journal of Statistics* 2017; 11(1): 1092-1159.

51. Ellingson L, Groisser D, Osborne D, Patrangenaru V, **Schwartzman A**. Nonparametric bootstrap of sample means of positive-definite matrices with an application to diffusion-tensor-imaging data analysis. *Communications in Statistics - Simulation and Computation* 2017; 46(6): 4851-4879.

50. N-Kachouie N*, Lin X, **Schwartzman A**. FDR Control of Detected Regions by Multi-Scale Matched Filtering. *Communications in Statistics - Simulation and Computation* 2017; 46(1): 127-144.

49. **Schwartzman A**. Log-Normal Distributions and Geometric Averages of Positive Definite Matrices. *International Statistical Review* 2016; 84(3): 456-486.

48. N-Kachouie N*, Lin X, Christiani DC, **Schwartzman A**. Detection of Local DNA Copy Number Changes in Lung Cancer Population Analyses Using A Multi-Scale Approach. *Communications in Statistics - Case Studies and Data Analysis* 2015; 1(4), 206-216.

47. Azriel D, **Schwartzman A**. The Empirical Distribution of a Large Number of Correlated Normal Variables. *Journal of the American Statistical Association* 2015; 110(511): 1217-1228.

46. Jung S, **Schwartzman A**, Groisser D. Scaling-Rotation Distance and Interpolation of Symmetric Positive Definite Matrices. *SIAM Journal on Matrix Analysis and Applications* 2015; 36(3): 1180-1201.

45. Cheng D*, **Schwartzman A**. The distribution of the height of local maxima of Gaussian random fields. *Extremes* 2015; 18(2): 213-240.

44. Usset J*, Maity A, Staicu AM, **Schwartzman A**. Glacier Terminus Estimation from Landsat Image Intensity Profiles. *Journal of Agricultural, Biological and Environmental Statistics* 2015; 20(2): 279-298.

43. Sun W, Reich B, Cai TT, Guindani M, **Schwartzman A**. False Discovery Control in Large-Scale Spatial Multiple Testing. *Journal of the Royal Statistical Society, Series B*, 2015; 77(1): 59-83.

42. Guo M*, Yap J, Van den Abbeele AD, Lin NU, **Schwartzman A**. Voxelwise Analysis of Imaging Response to Therapy in Neuro-oncology. *Stat* 2014; 3(1): 172-186.
41. Osborne D, Patrangenaru V, Ellingson L, Groisser D, **Schwartzman A**. Nonparametric Two-Sample Tests on Homogeneous Riemannian Manifolds, Cholesky Decompositions and Diffusion Tensor Image Analysis. *Journal of Multivariate Analysis*, 2013; 119: 163-175.
40. **Schwartzman A**, Jaffe A, Gavrilov Y*, Meyer C. Multiple Testing of Local Maxima for Detection of Peaks in ChIP-Seq Data. *Annals of Applied Statistics*, 2013; 7(1): 471-494.
39. **Schwartzman A**, Gavrilov Y*, Adler RJ. Multiple Testing of Local Maxima for Detection of Peaks in 1D. *Annals of Statistics*, 2011; 39(6): 3290-3319.
38. **Schwartzman A**, Lin X. The effect of correlation in FDR estimation. *Biometrika*, 2011; 98(1): 199-214.
37. **Schwartzman A**, Dougherty RF, Taylor JE. Group Comparison of Eigenvalues and Eigenvectors of Diffusion Tensors. *Journal of the American Statistical Association* 2010; 105(490): 588-599.
36. **Schwartzman A**, Mascarenhas W, Taylor JE. Inference for Eigenvalues and Eigenvectors of Gaussian Symmetric Matrices. *Annals of Statistics* 2008; 36(6): 2886-2919.
35. **Schwartzman A**. Empirical Null and False Discovery Rate Inference for Exponential Families. *Annals of Applied Statistics* 2008; 2(4): 1332-1359.
34. **Schwartzman A**, Dougherty RF, Taylor JE. False Discovery Rate Analysis of Brain Diffusion Direction Maps. *Annals of Applied Statistics* 2008; 2(1): 153-175.

Refereed Publications (Other scientific journals – major involvement) (* indicates supervisee)

33. Dohner J*, Birner B, **Schwartzman A**, Pongratz J, Keeling R. Using the Atmospheric CO2 Growth Rate to Constrain the Estimated CO2 Flux from Land Use and Land Cover Change Since 1900. *Global Change Biology* 2022; 28(24): 7327-7339.
32. Hansen K*, Hasenstab K*, **Schwartzman A**. Estimating Mountain Glacier Flowlines by Local Linear Regression Gradient Descent. *IEEE Transactions on Geosciences and Remote Sensing* 2021; 59(12): 10022-10034.
31. Bowring A, Telschow F*, **Schwartzman A**, Nichols TE. Confidence Sets for Cohen's d Effect Size Images. *Neuroimage* 2021; 226: 117477.
30. Lin W*, Hasenstab K, Moura Cunha G, **Schwartzman A**. Comparison of Handcrafted Features and Convolutional Neural Networks for Liver MR Image Adequacy Assessment. *Scientific Reports* 2020; 10: 20336.
29. **Schwartzman, A**, Keeling RF. Achieving atmospheric verification of CO2 emissions. *Nature Climate Change* 2020; 10: 416-417.
28. Bowring A, Telschow F*, **Schwartzman A**, Nichols TE. Spatial Confidence Sets for Raw Effect Size Images. *Neuroimage* 2019; 203: 116187.
27. **Schwartzman A**, Telschow F*. Peak p-values and false discovery rate inference in neuroimaging. *Neuroimage* 2019; 197: 402-413.
26. Qin L*, **Schwartzman A**, McCall K, N-Kachouie N, Yap J. Method for detecting voxelwise changes in Fluorodeoxyglucose-positron emission tomography brain images via background adjustment in cancer clinical trials. *Journal of Medical Imaging* 2017; 4(2): 024006.
25. N-Kachouie N*, Gerke T*, Winter J*, Huybers P, **Schwartzman A**. Nonparametric Regression for Estimation of Spatial and Temporal Mountain Glacier Retreat from Satellite Images. *IEEE Transactions on Geosciences and Remote Sensing*, 2015; 53(3): 1135-1149.
24. Naylor M*, Tosun D, Schuff N, Weiner M, **Schwartzman A**. Voxelwise multivariate analysis of multimodality imaging. *Human Brain Mapping*, 2014; 35(3): 831-846.
23. N-Kachouie N*, **Schwartzman A**. Non-Parametric Estimation of a Single Inflection Point in Noisy Observed Signal. *Journal of Electrical and Electronic Systems*, 2013; 2(2).

22. N-Kachouie N*, Huybers P, **Schwartzman A**. Localization of Mountain Glacier Termini in Landsat Multi-Spectral Images. *Pattern Recognition Letters*, 2013; 34(1):94-106.
21. Reiss PT, **Schwartzman A**, Lu F, Huang L, Proal E. Paradoxical results of adaptive false discovery rate procedures in neuroimaging studies. *Neuroimage*, 2012; 63: 1833-1840.
20. Hooker G, Finkelman M, **Schwartzman A**. Paradoxical Results in Multidimensional Item Response Theory. *Psychometrika* 2009; 74(31):419-442.
19. **Schwartzman A**, Dougherty RF, Lee J, Ghahremani D, Taylor JE. Empirical Null and False Discovery Rate Analysis in Neuroimaging. *Neuroimage* 2009; 44(1):71-82.
18. Laederach A, Chan JM, **Schwartzman A**, Willgohs E, Altman RB. Co-planar and Co-axial orientations of RNA bases and helices. *RNA* 2007; 13:643-650.
17. **Schwartzman A**, Dougherty RF, Taylor JE. Cross-subject comparison of principal diffusion direction maps. *Magnetic Resonance in Medicine* 2005; 53(6):1423-1431.
16. **Schwartzman A**, Wolf T, Gepstein L, Hayam G, Lessick J, Reisfeld D, Schwartz Y, Uretzky G, Ben-Haim SA. Characterisation of acute myocardial ischaemia in a canine model based on principal component analysis of unipolar endocardial electrograms. *Medical & Biological Engineering and Computing* 2001; 39(5):571-578.

Refereed Publications (Other scientific journals – minor involvement)

15. Jin Y, Keeling RF, Rödenbeck C, Patra PK, Piper SC, **Schwartzman A**. Impact of Changing Winds on the Mauna Loa CO2 Seasonal Cycle in Relation to the Pacific Decadal Oscillation. *Journal of Geophysical Research: Atmospheres* 2022; 127(13): e2021JD035892.
14. Moura Cunha G, Hasenstab KA, Higaki A, Wang K, Delgado T, Brunsing RL, Schlein A, **Schwartzman A**, Hsiao A, Sirlin CB, Fowler KJ. Convolutional neural network-automated hepatobiliary phase adequacy evaluation may optimize examination time. *European Journal of Radiology* 2020; 124: 108837.
13. Hasenstab KA, Moura Cunha G, Higaki A, Ichikawa S, Wang K, Delgado T, Brunsing RL, Schlein A, Kayat Bittencourt L, **Schwartzman A**, Fowler KJ, Hsiao A, Sirlin CB. Fully automated convolutional neural network-based affine algorithm improves liver registration and lesion co-localization on hepatobiliary phase T1-weighted MR images. *European Radiology Experimental* 2019; 3: 43.
12. Carrón Duque J, Buzzelli A, Fantaye Y, Marinucci D, **Schwartzman A**, Vittorio N. Point Source Detection and False Discovery Rate Control on CMB Maps. *Astronomy and Computing* 2019; 28: 100310.
11. Pranav P, Adler RJ, Buchert T, Edelsbrunner H, Jones BJT, **Schwartzman A**, Wagner H, van de Weygaert R. Unexpected topology of the temperature fluctuations in the Cosmic Microwave Background. *Astronomy & Astrophysics* 2019; 627: A163.
10. Chamberlain PM, Talley LD, Mazloff MR, Riser SC, Speer K, Gray AR, **Schwartzman A**. Observing the ice-covered Weddell Gyre with profiling floats: Position uncertainties and correlation statistics. *Journal of Geophysical Research: Oceans* 2018; 123: 8383-8410.
9. Scherrer B, **Schwartzman A**, Taquet M, Sahin M, Prabhu SP, Warfield SK. Characterizing the white-matter microstructure by assessment of the DIstribution of Anisotropic MicrO-structural eNvironments with Diffusion-weighted imaging (DIAMOND). *Magnetic Resonance in Medicine* 2016; 76: 963-977.
8. Gordon LB, Kleinman ME, Miller DT, Neuberg DS, Giobbie-Hurder A, Gerhard-Herman M, Smoot L, Gordon CM, Cleveland R, Snyder BD, Bishop R, Statkevitch P, Regen A, Sonis A, Riley S, Ploski C, Correia A, Quinn N, Ulrich NJ, Nazarian A, Liang MG, Huh SY, **Schwartzman A**, Kieran MW. Clinical trial of farnesyltransferase inhibitor in children with Hutchinson-Gilford progeria syndrome. *Proceedings of the National Academy of Sciences* 2012; 109(41): 16666-16671.

7. Gerhard-Herman M, Smoot LB, Wake N, Kieran MW, Kleinman ME, Miller DT, **Schwartzman A**, Giobbie-Hurder A, Neuberg D, Gordon LB. Mechanisms of Premature Vascular Aging in Children With Hutchinson-Gilford Progeria Syndrome. *Hypertension* 2012; 59: 92-97.
6. Wu ZJ, Meyer CA, Choudhury S, Shipitsin M, Maruyama R, Bessarabova M, Nikolskaya T, Sukumar S, **Schwartzman A**, Liu JS, Polyak K, and Liu XS. Gene expression profiling of human breast tissue samples using SAGE-Seq. *Genome Research* 2010; 20(12):1730-1739.
5. Rauschecker AM, Deutsch GK, Ben-Shachar M, **Schwartzman A**, Perry LM, Dougherty RF. Reading impairment in a patient with missing arcuate fasciculus. *Neuropsychologia* 2009; 47(1):180-194.
4. Harezlak J, Wu MC, Wang M, **Schwartzman A**, Christiani DC, Lin X. Biomarker Discovery for Arsenic Exposure Using Functional Data. Analysis and Feature Learning of Mass Spectrometry Proteomic Data. *Journal of Proteome Research* 2008; 7:217-224.
3. Lee J, Shahram M, **Schwartzman A**, Pauly JM. A complex data analysis in high-resolution SSFP fMRI. *Magnetic Resonance in Medicine* 2007; 57:905-917.
2. Anschel DJ, Pike B, Dolce S, **Schwartzman A**. Analysis of writing in an epilepsy center population: A prospective blinded study. *Epilepsy & Behavior* 2006; 9(3):464-468.
1. Anschel DJ, Dolce S, **Schwartzman A**, Fisher RS. A blinded pilot study of artwork in a comprehensive epilepsy center population. *Epilepsy & Behavior* 2005; 6(2):196-202.

Invited Discussion Papers

4. **Schwartzman A**. Discussion of "Fiber Direction Estimation in Diffusion MRI". *The Annals of Applied Statistics*, 2016; 10(3): 1157-1159.
3. **Schwartzman A**. Comment: FDP vs. FDR and the Effect of Conditioning. *Journal of the American Statistical Association*, 2012; 107(499): 1039-1041.
2. **Schwartzman A**. Comment on 'Correlated z-values and and the accuracy of large-scale statistical estimates' by Bradley Efron. *Journal of the American Statistical Association*, 2010; 105(491): 1059-1063.
1. **Schwartzman A**. Comment on: 'Statistical Analysis of Diffusion Tensors in Diffusion-Weighted Magnetic Resonance Imaging Data' by Zhu et al. *Journal of the American Statistical Association* 2007; 102(480):1102-1102.

Refereed Conference Proceedings

5. Scherrer B, Taquet M, **Schwartzman A**, St-Onge E, Rensonnet G, Prabhu SP, Warfield SK. Decoupling axial and radial tissue heterogeneity in diffusion compartment imaging. *Information Processing in Medical Imaging (IPMI)*, June 2017.
4. Alterman M, **Schwartzman A**, Schechner Y. 2D Simulation of Turbulence Induced Image Distortion. *International Conference on Computational Photography*, May 2017.
3. Rajagopalan V, **Schwartzman A**, Hua X, Leow A, Thompson P, Lepore N. Multivariate analysis of eigenvalues and eigenvectors in tensor based morphometry. *Proc. SPIE 9287, 10th International Symposium on Medical Information Processing and Analysis*, January 2015.
2. Scherrer B, **Schwartzman A**, Taquet M, Prabhu SP, Sahin M, Akhondi-Asl A, Warfield SK. Characterizing the DIstribution of Anisotropic MicrO-structural eNvironments with Diffusion-weighted imaging (DIAMOND). *Proc. of the 16th Int Conf Med Image Comput Comput Assist Interv (MICCAI)*, Nagoya, Japan, 2013.
1. **Schwartzman A**, Wolf T, Gepstein L, Hayam G, Lessick J, Reisfeld D, Schwartz Y, Uretzky G, Ben-Haim SA. Principal component analysis as a method of investigation of endocardial signals in acute myocardial ischemia. *IEEE Computers in Cardiology* 2000:837-840.

Teaching Experience (Academic)

University of California, San Diego, La Jolla, CA, USA
Instructor (Full responsibility for lectures, homework, exams, projects, website, grades.)

- FMPH 221: Biostatistical Methods I — Fall 2021
- MATH 189: Data Analysis and Inference — Spring 2021
- FMPH 221: Biostatistical Methods I (Student evaluation score 5.0/5) — Fall 2020
- MATH 189: Data Analysis and Inference — Spring 2020
- FMPH 221: Biostatistical Methods I (Student evaluation score 5.0/5) — Fall 2019
- FMPH 102: Biostatistics for Public Health — Winter 2019
- FMPH 221: Biostatistical Methods I (Student evaluation score 5.0/5) — Fall 2018
- FMPH 102: Biostatistics for Public Health — Winter 2018
- FMPH 221: Biostatistical Methods I (Student evaluation score 4.7/5) — Fall 2017
- FMPH 221: Biostatistical Methods I (Student evaluation score 4.8/5) — Fall 2016

Technion - Israel Institute of Technology, Haifa, Israel
Instructor (Full responsibility for lectures, homework, exams, projects, website, grades.)

- IEM 096425: Introduction to Time Series and Forecasting (in Hebrew) — Winter 2015
- EE 048717: Selected Topics in Statistical Signal and Image Analysis — Spring 2013
- EE 046200: Introduction to Image Processing and Analysis (in Hebrew) — Winter 2012
- IEM 096425: Introduction to Time Series and Forecasting (in Hebrew) — Spring 2009

North Carolina State University, Raleigh, NC, USA
Instructor (Full responsibility for lectures, homework, exams, projects, website, grades.)

- ST 521: Statistical Theory I (Student evaluation score 4.5/5) — Fall 2014
- ST 521: Statistical Theory I (Student evaluation score 4.5/5) — Fall 2013

Harvard School of Public Health, Boston, MA, USA
Instructor (Full responsibility for lectures, homework, exams, website, grades.)

- BIO 251: Statistical Inference II — Spring 2012
- BIO 230: Probability Theory I (Student evaluation score 4.6/5) — Fall 2010
- BIO 230: Probability Theory I (Student evaluation score 4.4/5) — Fall 2009
- BIO 230: Probability Theory I (Student evaluation score 3.6/5) — Fall 2008

Stanford University, Stanford, CA, USA
Instructor (Full responsibility for lectures, homework, projects, website, grades.)

- Stat 237: Time series analysis and forecasting — July 2006
- Stat 207: Introduction to time series analysis — July-Aug. 2005

Head Teaching Assistant (Weekly sections, website, and coordination with other TAs.)

- Stat 390: Consulting workshop — Spring 2006
- Stat 60: Introduction to statistical methods — Fall 2004
- Stat 110: Statistical methods in engineering and the physical sciences — Fall 2003
- Stat 116: Theory of probability — Spring 2003

Teaching Assistant (Weekly problem sections, grading of homework and exams.)

- Stat 261: Intermediate biostatistics: analysis of discrete data — Winter 2006
- Stat 60: Introduction to statistical methods — Fall 2002
- Stat 116: Theory of probability — Spring 2002

California Institute of Technology, Pasadena, CA, USA
Teaching Assistant (Regular office hours and grading.) — Sep. 1995 - Mar. 1996
Courses: Digital signal processing principles, Wireless communications.

Technion - Israel Institute of Technology, Haifa, Israel
Private Tutor — Feb. 1993 - Mar. 1995
Assisted undergraduate students in physics and electrical engineering courses.

Academia Trener, Lima, Perú
Teacher — Aug. 1990 - July 1991

High-school level algebra and physics for admission exams to Peruvian universities.

Teaching Experience (Short-Courses)

- Scripps Institution of Oceanography, U. of California, San Diego. Feb. 2018, Feb. 2019, Feb. 2020
  Introduction to Remote Sensing of the Environment.
- Harvard Diversity Summer Program in Quantitative Sciences June 2009, June 2011
  Quantitative program for minority undergraduates from around the US.
- XI Jornadas Nacionales de Bioestadística. Talca, Chile Jan. 2011
  Short course: Overview of large-scale multiple testing.
- Eastern North American Region (ENAR) / International Biometric Society, New Orleans, LA March 2010
  Short course: Statistical Methods for Analysis of High-Dimensional Data with Applications in Biosciences.
- Curso-Taller de Métodos Epidemiológicos, Iquitos, Perú (Co-instructor) June 2008
  Workshop on basic statistical methods in epidemiology, organized by McGill University.

Research advising (post-doctoral)

- Samuel Davenport (Postdoc, UCSD): Gaussian random fields Mar. 2021 - Present
- Fabian Telschow (Postdoc, UCSD): Random fields, functional data Feb. 2017 - Jan. 2021
- Kyle Hasenstab (Postdoc, UCSD): Image analysis, machine learning Aug. 2017 - Aug. 2019
- Dan Cheng (Postdoc, NCSU): Random fields, multiple testing Aug. 2012 - July 2016
- David Azriel (Postdoc, Technion): High dimensional dependence Oct. 2012 - July 2013
- Nezamoddin N.-Kachouie (Postdoc, HSPH/DFCI): Image analysis Nov. 2010 - July 2012
- Mengye Guo (Research Scientist, DFCI): Medical image analysis Sep. 2009 - July 2010
- Melissa Naylor (Postdoc, HSPH): Medical image analysis Sep. 2009 - June 2010
- Yulia Gavrilov (Postdoc, HSPH/DFCI): Large-scale multiple testing Dec. 2008 - June 2010
- Roman Torgovisky (Postdoc, HSPH): Nonparametric regression Nov. 2008 - Aug. 2009

PhD Dissertation Committees (Main adviser)

- Kristen Hansen (UCSD Biostatistics): Spatial statistics Jan. 2019 - Present
- Wenyi Lin (UCSD Biostatistics): Statistical image analysis Sep. 2018 - Present
- Han Na Lee (NCSU Statistics): Matrix-variate statistics Oct. 2013 - May 2016
- Joseph Usset (NCSU Statistics): Nonparametric regression Aug. 2012 - May 2014

PhD Dissertation Committees (Member)

- Philipp Arndt (Scripps Inst. of Oceanography): Antarctic ice Sep. 2021 - Present
- Yuming Jin (Scripps Inst. of Oceanography): Estimation of wind components Sep. 2020 - Present
- Tuo Lin (UCSD Biostatistics): Gaussian random fields Jun. 2019 - Present
- Julia Dohner (Scripps Inst. of Oceanography): Land use CO2 emissions Sep. 2018 - Present
- Paul Chamberlain (Scripps Inst. of Oceanography): Location of floats Sep. 2018 - Present
- Shulin Cao (UCSD Biomedical Engineering): Gene networks Sep. 2018 - Sep. 2021
- Shiyun Chen (UCSD Math): High dimensional data Feb. 2019
- Chun Chieh Fan (UCSD Neuroscience): Imaging genetics Oct. 2018
- Miguel Marino (HSPH Biostatistics): Random matrices May 2011

Other research advising (doctoral)

- Junting Ren (PhD student, UCSD): Spatial inference Sep. 2020 - Present
- Tom Maullin-Sapey (PhD student, Oxford U): Gaussian random fields Sep. 2020 - Present
- Yu Zhao (PhD student, UCSD): Gaussian random fields Mar. 2020 - Present
- Anubhav Singh-Sachan (PhD student, UCSD): Statistical genetics Jan. 2020 - Present
- Samuel Davenport (PhD student, Oxford U): Gaussian random fields Sep. 2018 - Feb. 2021

- Alex Bowring (PhD student, Oxford U): Neuroimage analysis — Jan. 2017 - Jan. 2019
- Hanjie Shen (PhD student, UCSD): Medical image analysis — Sep. 2016 - Aug. 2017
- Alison Wu (PhD student, NCSU): Satellite image analysis — Oct. 2013 - Jan. 2016
- Meng Li (PhD student, NCSU): Image segmentation — Aug. 2013 - June 2015
- Max Sommerfeld (PhD student, Göttingen): Random fields — Jan. 2014 - Oct. 2014
- Travis Gerke (PhD student, HSPH): Satellite image analysis — June 2010 - July 2013
- Denis Agniel (PhD student, HSPH): Large-scale multiple testing — Sep. 2011 - July 2012

Research advising (pre-doctoral)

- Mingxuan Zhao (BS student, UCSD): Deep learning — Sep. 2021 - Present
- Nathan Schwedock (BS student, SDSU): Databases — June 2021 - July 2021
- Darren Liu (BSc student, UCSD): Geospatial data analysis — June 2019 - June 2021
- Adithya Seshadri (MS student, NCSU): Databases — Sep. 2014 - June 2015
- Sandhya Nayak (MS student, NCSU): Optimization — Sep. 2014 - May 2015
- Miri Erihov (MSc student, Technion): PET image analysis — Oct. 2012 - Jan. 2013
- James Winter (BSc student, Harvard): Satellite image analysis — Sep. 2010 - May 2011
- Bike Kilic (MSc student, North Eastern U.): Image registration — Sep. 2008 - Apr. 2009

Conference Organization

9. Organizer, invited session, International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2018), Pisa, Italy — Dec. 2018
   Statistics in cosmology
8. Scientific Program Committee member and invited session organizer, International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017), London, UK — Dec. 2017
   Inference for functional MRI data
7. Organizer, invited session, International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2016), Sevilla, Spain — Dec. 2016
   Analysis of satellite imagery
6. Organizer, invited session, Joint Statistical Meetings, Montreal, QC — Aug. 2013
   Neuroimaging statistics: A memorial session in honor of Keith Worsley
5. Organizer, invited session, WNAR / Graybill, Fort Collins, CO — June 2012
   Spatial Methods for Climate Applications
4. Organizer, invited session, WNAR / IBS, San Luis Obispo, CA — June 2011
   Inference for Signals and Images
3. Organizer, topic-contributed session, Joint Statistical Meetings, Vancouver, BC — Aug. 2010
   Diffusion Tensor Imaging in the Brain: Tracts and Connectivity
2. Organizer, Dana Farber / Harvard Cancer Center annual Biostatistics Workshop — May 2009
1. Co-organizer, Exploratory Seminar on High-Dimensional Data Analysis: Perspectives from the Interface of Statistics, Biosciences, and Information Sciences, Radcliffe Institute for Advanced Study — Oct. 2008

Invited Presentations - Seminars

66. International Seminar on Selective Inference (online seminar) — July 2021
    Coverage Probability Excursion Sets for Spatial Localization of Important Effects
65. Statistics and Data Science Seminar, Cornell University (online seminar) — Sep. 2020
    Coverage Probability Excursion Sets for Spatial Localization of Important Effects
64. Mathematics Seminar, University of Southern California, Los Angeles, CA — Feb. 2020
    How tall are the waves? The Height Distribution of Critical Points of Smooth Isotropic Gaussian Random Fields

63. Statistics Seminar, San Diego State University, San Diego, CA Apr. 2019
Mapping Differences Between Images.

62. Statistics Seminar, University of California, Irvine Feb. 2019
Mapping Differences Between Images.

61. Statistics Seminar, Rice University, Houston, TX Sep. 2018
Multiple Testing of Local Maxima for Detection of Peaks in Random Fields.

60. Big Data Institute, Oxford University Dec. 2017
Error control in fMRI using the (nonstationary) Gaussian kinematic formula.

59. Biostatistics Seminar, University of California, Los Angeles May 2017
Correlation and Mixture in High Dimensional Data: Should the Distribution Look Normal?

58. Statistics Seminar, University of Texas, El Paso Apr. 2017
Confidence regions for spatial excursion sets from repeated random field observations, with an application to climate.

57. Statistics Seminar, University of California, Irvine Oct. 2016
Geometric Means of Positive Definite Matrices and the Matrix-Variate Lognormal Distribution.

56. Biostatistics Seminar, University of California, San Diego Mar. 2016
Correlation and Mixture in High Dimensional Data: Should the Distribution Look Normal?

55. Mathematics Colloquium, Tulane University, New Orleans, LA Mar. 2016
Multiple Testing of Local Maxima for Detection of Peaks in Random Fields.

54. Probability Seminar, Tulane University, New Orleans, LA Mar. 2016
Expected Number and Height Distribution of Critical Points of Smooth Isotropic Gaussian Random Fields.

53. Statistics Seminar, Tel Aviv University, Tel Aviv, Israel Dec. 2015
Asymptotic Confidence Regions for Spatial Excursion Sets, with an Application to Climate.

52. Statistics Seminar, Hebrew University, Jerusalem, Israel Dec. 2015
Asymptotic Confidence Regions for Spatial Excursion Sets, with an Application to Climate.

51. Probability Seminar, Technion - Israel Institute of Technology, Haifa, Israel Nov. 2015
Expected Number and Height Distribution of Critical Points of Smooth Isotropic Gaussian Fields.

50. Statistics Seminar, Università degli Studi di Roma Tor Vergata Mar. 2015
Multiple Testing of Local Maxima for Detection of Peaks in Random Fields.

49. Biostatistics Seminar, University of California, San Diego Mar. 2015
Image Comparison Problems in Biomedicine.

48. Quantitative Sciences Unit Seminar, Stanford University Feb. 2015
Image Comparison Problems in Biomedicine.

47. Statistics Seminar, Temple University, Philadelphia, PA Nov. 2014
Multiple Testing of Local Maxima for Detection of Peaks in Random Fields.

46. Lectures on Analysis of Neuroimaging Data, New York University Langone Medical Center, New York, NY Nov. 2014
The problem of voxelwise inference under correlation.

45. Interdisciplinary Distinguished Seminar Series, Electrical & Computer Engineering, North Carolina State University Mar. 2014
Peak Detection and Topological Inference in Images.

44. Biostatistics Seminar, University of California, Berkeley Jan. 2014
Theoretical and Applied Problems in Statistical Signal and Image Analysis.

43. Earth Engine Team, Google, Mountain View, CA Jan. 2014
Two Image Analysis Problems in Geoscience.

42. Statistics Seminar, Purdue University Jan. 2014
Multiple Testing of Local Maxima for Detection of Peaks in N dimensions.

41. Statistics Seminar, University of North Carolina, Chapel Hill, NC Jan. 2014
Theoretical and Applied Problems in Statistical Signal and Image Analysis.

40. Environmental Statistics Seminar, North Carolina State University Nov. 2013
Estimation of Mountain Glacier Retreat from Landsat Images.

39. Statistics Seminar, Technion - Israel Institute of Technology, Haifa, Israel June 2013
Geometric Means of Positive Definite Matrices and the Matrix-Variate Lognormal Distribution.

38. Applied Topology Seminar, Technion - Israel Institute of Technology, Haifa, Israel May 2013
Peak Detection and Topological Inference in Images.

37. Geoinformatics Seminar, Technion - Israel Institute of Technology, Haifa, Israel Mar. 2013
Estimation of mountain Glacier Retreat from Landsat Images.

36. Statistics Seminar, Haifa University, Haifa, Israel Mar. 2013
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

35. Statistics Seminar, Hebrew University, Jerusalem, Israel Jan. 2013
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

34. Statistics Seminar, Tel Aviv University, Tel Aviv, Israel Dec. 2012
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

33. Statistics Seminar, Università degli Studi di Roma Tor Vergata Oct. 2012
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

32. Statistics Seminar, Stanford University July 2012
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

31. Electrical and Computer Engineering Seminar, University of California, San Diego Mar. 2012
Theoretical and Applied Problems in Biomedical Signal and Image Analysis.

30. Statistics Seminar, North Carolina State University Feb. 2012
Theoretical and Applied Problems in Statistical Image Analysis.

29. Statistics Seminar, University of Southern California Jan. 2012
Topological Inference, Large-Scale Multiple Testing, and Random Positive Definite Matrices.

28. Mechanical and Aerospace Engineering Seminar, University at Buffalo Oct. 2011
Random Ellipsoids (Symmetric Positive Definite Matrices).

27. Statistics Seminar, Carnegie-Mellon University Apr. 2011
Multiple Testing of Local Maxima for Detection of Unimodal Peaks in 1D.

26. Biostatistics Colloquium, Johns Hopkins University Nov. 2010
Voxel-Based Group Tests of Eigenvalues and Eigenvectors of Diffusion Tensors.

25. Biostatistics Seminar, University of Rochester Oct. 2010
The effect of correlation in false discovery rate estimation.

24. Biostatistics Seminar, New York University Sep. 2010
Empirical null and false discovery rate inference in neuroimaging.

23. Nathan Kline Institute, New York. Sep. 2010
Voxel-Based Group Tests of Eigenvalues and Eigenvectors of Diffusion Tensors.

22. Departamento de Estadística, Universidad Católica de Chile, Santiago, Chile Jan. 2010
Voxel-Based Group Tests of Eigenvalues and Eigenvectors of Diffusion Tensors.

21. Laboratory of Neuroimaging, University of California, Los Angeles July 2009
Voxel-Based Group Tests of Eigenvalues and Eigenvectors of Diffusion Tensors.

20. National Center for Atmospheric Research, Boulder, CO June 2009
Where Are The Differences? Multiple Testing on Images.

19. Electrical Engineering, Technion - Israel Institute of Technology, Haifa, Israel May 2009
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

18. Statistics Seminar, Haifa University, Haifa, Israel Apr. 2009
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

17. Probability Seminar, Technion - Israel Institute of Technology, Haifa, Israel Apr. 2009
Geometry, Means and Distributions for Random Positive Definite Matrices.

16. Statistics Seminar, Tel Aviv University, Tel Aviv, Israel Apr. 2009
The effect of correlation on FDR estimation.

15. Statistics Seminar, Hebrew University, Jerusalem, Israel Mar. 2009
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

14. Statistics Seminar, University of California, Berkeley Dec. 2008
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

13. Statistics Seminar, Florida State University Nov. 2008
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

12. Massachusetts General Hospital Feb. 2007
A Log-Normal Distribution and Two-Sample Tests for the Full Diffusion Tensor.

11. Statistics Seminar, University of Toronto Mar. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

10. Statistics Seminar, University of Illinois, Urbana-Champaign Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

9. Math Seminar, San Francisco State University Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

8. Dept. of Biostatistics, University of North Carolina, Chapel Hill Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

7. Statistics Seminar, North Carolina State University Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

6. Dept. of Biostatistics, Harvard School of Public Health Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

5. Statistics Seminar, Harvard University Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

4. Math Seminar, Massachusetts Inst. of Tech. Feb. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

3. Math Seminar, Washington University, St. Louis Jan. 2006
Random Ellipsoids and False Discovery Rates: Statistics for Diffusion Tensor Imaging Data.

2. Biostatistics Workshop, Stanford University Nov. 2005
Random ellipsoids and brain imaging.

1. Biostatistics Workshop, Stanford University Apr. 2005
Cross-subject comparison of brain diffusion direction maps.

Invited Presentations - Conferences

42. NIMH Workshop on Advanced Statistical Methods and Dynamic Data Visualizations for Mental Health Studies (online event) Jun. 2021
Estimating the fraction of variance of cognitive traits explained by high-dimensional genetic and neuroimaging measures

41. Neuroimaging Statistics Oxford, Oxford, UK Dec. 2019
A simple, consistent estimator of heritability from genome-wide association studies.

40. International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2019), London, UK Dec. 2019
A simple, consistent estimator of heritability from genome-wide association studies.

39. Statistical Methods in Imaging (SMI 2019), UC Irvine, CA June 2019
Do not test for activation in fMRI but estimate the regions of activation.

38. International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2018), Pisa, Italy Dec. 2018
Multiple testing of local maxima for detection of peaks on the (celestial) sphere.

37. Seminario Internacional de Procesamiento y Análisis de Imágenes Médicas (SIPAIM), Mazatlán, México Oct. 2018
Statistical Comparison of Images (in Spanish).

36. Inst. of Math. Statistics, Asia Pacific Rim Meeting (IMS-APRM), Singapore June 2018
Do not test but estimate the areas of activation in fMRI.

35. International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2017), London, UK Dec. 2017
Error control in fMRI using the (nonstationary) Gaussian kinematic formula.

34. European Meeting of Statisticians (EMS), Helsinki, Finland July 2017
Confidence regions for spatial excursion sets from repeated random field observations, with an application to climate.

33. International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2016), Sevilla, Spain Dec. 2016
Estimation of Mountain Glacier Retreat from Landsat Images.

32. Conference on Statistical Topology of Random Manifolds, International Centre for Theoretical Physics, Trieste, Italy July 2016
Expected Number and Height Distribution of Critical Points of Smooth Isotropic Gaussian Random Fields.

31. Statistics for Shape and Geometric Features, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach, Germany July 2016
Nonparametric Estimation of Surface Flow Lines.

30. Rocky Mountain Mathematics Consortium, U. of Wyoming, Laramie, WY June 2016
Monitoring of mountain glaciers from satellite images.

29. Rocky Mountain Mathematics Consortium, U. of Wyoming, Laramie, WY June 2016
Follow-up of PET images in brain cancer patients.

28. Rocky Mountain Mathematics Consortium, U. of Wyoming, Laramie, WY June 2016
Statistical peak detection for images.

27. Rocky Mountain Mathematics Consortium, U. of Wyoming, Laramie, WY June 2016
Spatial Inference in Image Analysis.

26. International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2015), London, UK Dec. 2015
Asymptotic Confidence Regions for Spatial Excursion Sets, with an Application to Climate.

25. Encuentro Científico Internacional, Lima, Perú Jan. 2015
El Problema de Comparación de Imágenes (in Spanish).

24. Workshop on Time Dynamic Change Point Models and its Applications, Georg-August-Universität, Göttingen, Germany Oct. 2014
Multiple Testing of Local Maxima for Peak and Change Point Detection.

23. International Society of Non Parametric Statistics (ISNPS), Cádiz, Spain June 2014
Geometric Means of Positive Definite Matrices and the Matrix-Variate Lognormal Distribution.

22. International Conf. on Stat. Distr. and Appl. (ICOSDA), Mount Pleasant, MI Oct. 2013
Geometric Means of Positive Definite Matrices and the Matrix-Variate Lognormal Distribution.

21. Joint Statistical Meetings (Invited session), Montréal, QC, Canada Aug. 2013
Geometric Means of Positive Definite Matrices and the Matrix-Variate Lognormal Distribution.

20. Probabilistic and Statistical Techniques for Cosmological Appl., Rome, Italy June 2013
The distribution of the height of local maxima of Gaussian random fields.

19. EMR / International Biometric Society, Tel Aviv, Israel Apr. 2013
Multiscale multiple testing for detection of regions of genomic copy number change in population analyses.

18. Symposium on Nanoscale Photonic Imaging, Max Planck Institute of Biophysical Chemistry, Göttingen, Germany Apr. 2013
Statistical Methods for 2D and 3D Images using Extreme Value Theory of Gaussian Random Fields.

17. Joint Statistical Meetings (Invited session), San Diego, CA Aug. 2012
Discussant, JASA Theory and Methods Invited Session: Estimating False Discovery Proportion Under Arbitrary Dependence

16. MBI Workshop on Statistics, Geometry and Combinatorics on Stratified Spaces Arising from Biological Problems, Columbus, OH May 2012
Geometry and Statistics in the Eigen-structure of Symmetric (Positive Definite) Matrices.

15. International Chinese Statistical Association, New York, NY June 2011
Multiple Testing of Local Maxima for Detection of Peaks in ChIP-Seq Data.

14. WNAR / International Biometric Society, San Luis Obispo, CA June 2011
Multiple Testing of Local Maxima for Detection of Peaks in 1D.

13. ENAR / International Biometric Society, Miami, FL March 2011
Empirical null and false discovery rate inference in Neuroimaging.

12. SAMSI Program on Analysis of Object Data, Research Triangle, NC Sep. 2010
Data Objects in Diffusion Tensor Imaging.

11. Workshop on Advanced Statistical Concepts for Multimodal MRI. University of California, San Francisco, and VA Medical Center, San Francisco June 2010
Voxelwise multivariate analysis of multimodality imaging.

10. WAART I: Workshop in Algebraic and Random Topology, Chicago, IL Apr. 2010
Applications of random fields in brain image analysis.

9. X Jornadas Nacionales de Bioestadística. Santiago, Chile Jan. 2010
Overview of large-scale multiple testing.

8. Joint Statistical Meetings (Topic-contributed session), Washington, DC Aug. 2009
Voxel-Based Inference for Eigenvalues and Eigenvectors in Group Diffusion Tensor Imaging Studies.

7. BIRS Workshop on Random Fields and Stochastic Geometry, Banff, Alberta Feb. 2009
Inference for Eigenvalues and Eigenvectors of Random Symmetric Matrices.

6. Joint Statistical Meetings (Topic-contributed session), Denver, CO Aug. 2008
Inference for Eigenvalues and Eigenvectors of Diffusion Tensors in Multisubject Diffusion Tensor Imaging Studies.

5. SAMSI Program on Random Matrices and High Dimensional Inference, American Institute of Mathematics, Palo Alto, CA Apr. 2007
Distributions for Random Positive Definite Matrices.

4. SAMSI Program on Geometry, Random Matrices, and Statistical Inference, Research Triangle Park, NC Nov. 2006 and Jan. 2007
Distributions for Random Positive Definite Matrices.

3. SAMSI Workshop on Random Matrices and High Dimensional Inference, Research Triangle Park, NC Sep. 2006
Random Ellipsoids: Statistics for Diffusion Tensor Imaging Data.

2. WNAR / International Biometric Society, Flagstaff, NM June 2006
Random Ellipsoids: Statistics for Diffusion Tensor Imaging Data.

1. Organization for Human Brain Mapping, Florence June 2006
A Log-Normal Distribution and Two-Sample Tests for the Full Diffusion Tensor.

Contributed Presentations - Conferences

9. Geo for Good Summit, Google Inc., Mountain View, CA Sep. 2019
   Monitoring of mountain glaciers from satellite images.
8. Nonstandard Brain Image Analysis, Singapore June 2018
   Do not test but estimate the areas of activation in fMRI.
7. Joint Statistical Meetings (Contributed session), Boston, MA Aug. 2014
   Estimation of Mountain Glacier Retreat from Landsat Image Intensity Profiles.
6. Eleventh Meeting of New Researchers in Statistics and Probability, University of Colorado, Boulder, and NCAR July 2008
   Inference for Eigenvalues and Eigenvectors of Gaussian Symmetric Matrices.
5. Industrial Affiliates Annual Conference, Stanford University May 2006
   Spatial Smoothing for FDR Detection in Images.
4. International Symposium on Business and Industrial Statistics, Lima, Perú Jan. 2006
   Reconstrucción de entorno vehicular en tiempo real.
3. Stanford Graduate Fellowship Research Symposium, Stanford University Apr. 2005
   How do we find differences in anatomy between people's brains?
2. Industrial Affiliates Annual Conference, Stanford University Apr. 2004
   Real-time reconstruction of traffic environment.
1. Computers in Cardiology, Boston, MA Sep. 2000
   Principal component analysis as a method of investigation of endocardial signals in acute myocardial ischemia.

Contributed Posters

11. Organization for Human Brain Mapping, Singapore June 2018
    Peak p-values and statistical inference.
10. American Association for the Advancement of Science (AAAS), San Jose, CA February 2015
    Estimation of Mountain Glacier Retreat from Landsat Images.
9. SAMSI Program on Analysis of Object Data, Research Triangle, NC Sep. 2010
   Geometric means and log-normal distributions for positive definite matrices.
8. Contemporary Frontiers in High-Dimensional Statistical Data Analysis, Newton Institute, University of Cambridge, UK Jan. 2008
   Empirical null and FDR inference for exponential families.
7. SAMSI Program on Geometry and Statistics of Space Shapes, Research Triangle Park, NC July 2007
   Statistics for Diffusion Tensor Imaging and the Shape of Brain Tumors.
6. X Congreso Latinoamericano de Probabilidad y Estadística Matemática (X CLAPEM), Lima, Perú Feb. 2007
   Random Ellipsoids: Statistics for Diffusion Tensor Imaging Data.
5. SAMSI Program on Random Matrices and High Dimensional Inference, Research Triangle Park, NC Sep. 2006
   Random Ellipsoids: Statistics for Diffusion Tensor Imaging Data.
4. Organization for Human Brain Mapping, Florence, Italy June 2006
   A log-normal distribution and two-sample tests for the full diffusion tensor.
3. Organization for Human Brain Mapping, Florence, Italy June 2006
   A general empirical null for voxelwise FDR inference in neuroimaging.
2. Organization for Human Brain Mapping, Toronto, Canada June 2005
   Analysis tools for DTI maps using the full diffusion tensor.
1. Organization for Human Brain Mapping, Budapest, Hungary June 2004
   Comparison of principal diffusion directions using directional statistics.

Other Conferences / Workshops

- EMR / International Biometric Society, Jerusalem, Israel — Dec. 2018
- Statistics and Geometry Workshop, University of California, Davis, CA — May 2017
- STATMOS-SIO Workshop on Argo Data Statistics, U. of California, San Diego, CA — Apr. 2017
- SAMSI Program on Computational Neuroscience, Research Triangle Park, NC — Sep. 2015
- SIAM Conference on Uncertainty Quantification, Savannah, GA — Mar. 2014
- SAMSI Program on Low-dimensional Structure in High-dimensional Systems, Research Triangle Park, NC — Sep. 2013
- From Science to Policy - Environment and Health in Israel, Tel Aviv, Israel — Dec. 2012
- Workshop on Statistical Inferences on Shape Manifolds, American Institute of Mathematics, Palo Alto, CA — May 2005

Editorial Roles

Associate Editor (Reviewed and assigned referees for submitted articles on multiple rounds)

- Electronic Journal of Statistics (37 articles handled) — 2016 - Present
- Econometrics and Statistics, Special issue on Neuroimaging — 2018 - 2020

Journal Refereeing (Statistical Journals)

- Journal of the American Statistical Association — July 2022, May 2021, July 2020, Apr. 2019, May 2018, Jan. 2016, June 2015, July 2014, June 2013, Mar. 2013, Dec. 2011, Apr. 2011, Nov. 2010, Feb. 2009, Apr. 2008, Aug. 2007
- Biometrika — Sep. 2019, Sep. 2018, Aug. 2018, Apr. 2018, Jan. 2018, Aug. 2017
- Annals of Statistics — Mar. 2021, Oct. 2018, June 2016, Jan. 2015, June 2014, Jan. 2014, July 2010
- Statistical Science — May 2022, Dec. 2021
- Journal of the Royal Statistical Society (Series B) — Aug. 2022, July 2014 Nov. 2012, Apr. 2011, Feb. 2010, Sep. 2006
- Annals of the Institute of Statistical Mathematics — June 2018, May 2018
- Bernoulli Journal — Feb. 2019
- Statistical Methods in Medical Research — Aug. 2019
- Biometrics — Oct. 2020, Jan. 2020, June 2013, Jan. 2008, July 2008
- Annals of Applied Statistics — Aug. 2019, Sep. 2015, Mar. 2015, Aug. 2013, May 2013, Feb. 2013, Oct. 2012, Aug. 2012, April 2012, Dec. 2011, Feb. 2011, July 2009
- Computational Statistics and Data Analysis — Mar. 2017
- Journal of Multivariate Analysis — June 2016, Mar. 2016, Aug. 2015, Sep. 2014, July 2013
- Statistical Papers — Aug. 2018
- Canadian Journal of Statistics — June 2016
- Scandinavian Journal of Statistics — Oct. 2015, July 2014, Aug. 2013, May 2013
- Statistics and Probability Letters — Mar. 2015, Nov. 2013, July 2013, Dec. 2012
- Journal of the Royal Statistical Society (Series C) — Nov. 2012, Apr. 2011, Feb. 2010
- Biostatistics — June 2011
- Bioinformatics — Dec. 2011
- Journal of Statistical Software — Feb. 2011
- Statistics in Medicine — Aug. 2010
- IMS Lecture Notes - Monograph Series — Mar. 2009
- Electronic Journal of Statistics — Aug. 2007
- Revstat - Statistical Journal — Sep. 2019, Mar. 2019

Journal Refereeing (Other Scientific Journals)

- High Frequency — May 2019, Aug. 2019
- Frontiers Neuroscience — Apr. 2019
- Entropy — June 2020, Jan. 2020, Mar. 2019
- Neuroimage — July 2019, June 2011, Jan. 2011, Aug. 2009, Mar. 2009, Feb. 2007, June 2006
- Geosciences — June 2018, July 2018

- J. of Selected Topics in Applied Earth Obs. and Remote Sensing — Aug. 2017, Nov. 2017
- SIAM Journal on Imaging Sciences — July 2017, Dec. 2016
- American Mathematical Monthly — Aug. 2015
- IEEE Transactions on Information Theory — July 2015, May 2015, Dec. 2014
- BMC Medical Research Methodology — Oct. 2014
- Mathematics of Operations Research — Sep. 2014
- Psychometrika — Apr. 2011
- IEEE Transactions on Medical Imaging — Apr. 2007, Oct. 2006
- Medical Image Analysis — June 2008
- Computer Methods and Programs in Biomedicine — July 2005
- IEEE International Symposium on Information Theory — Feb. 2005

Grant Review Committees

- Statistics Program, National Science Foundation — Mar. 2022, Feb. 2017
- Dutch Research Council (NWO) — Nov. 2021, Oct. 2019
- Emerging Imaging Technologies in Neuroscience (EITN) Study Section, NIH — June 2020
- Israeli-Québec Collaboration in Medical Bio-Imaging — Feb. 2017
- Biostatist. Methods and Research Design (BMRD) Study Section, NIH — Feb. 2017, June 2015
- Network for Translational Research: Optical Imaging, NCI/NIH — June 2008
- In-vivo Cellular and Molecular Imaging Centers, NCI/NIH — Nov. 2007

Scientific Review Committees

- International Symposium on Medical Image Processing and Analysis (SIPAIM) — 2021, 2022

University Service

University of California, San Diego, La Jolla, CA, USA

- Halıcıoğlu Data Science Institute PhD Program Committee — AY 2019-Present
- Halıcıoğlu Data Science Institute MS Program Committee — AY 2019-Present
- Halıcıoğlu Data Science Institute Faculty Council — AY 2019-Present
- Halıcıoğlu Data Science Institute Advisory Board — AY 2018-19
- Biostatistics Division Executive Committee — AY 2018-Present
- Biostatistics PhD Program Admissions Committee — AY 2016-Present
- Biostatistics PhD Program Education Committee — AY 2016-Present
- BS in Public Health Steering Committee — AY 2018-19
- Biostatistics Division Hiring Committee — AY 2016-17

North Carolina State University, Raleigh, NC, USA

- Written Preliminary Exam Committee — AY 2014-15
- Hiring Committee — AY 2014-15
- Basic Exam Committee — AY 2013-14

Harvard School of Public Health, Boston, MA, USA

- High Dimensional Data Seminar, Co-organizer — AY 2007-12
- Qualifying Exam Committee — AY 2008-11
- Newsletter Committee — AY 2007-09
- Degree Program Committee — AY 2007-08
- Diversity Committee — AY 2007-08
- Seminar committee — AY 2006-07

Stanford University, Stanford, CA, USA

- International Center Host — AY 2004-06
- President of the Peruvian Student Association — AY 2005-06
- Community Associate for Graduate Housing — AY 2003-04

External Appointment/Promotion Evaluation Letters

- Dept. of Statistics, Seoul National University — Mar 2022

- Faculty of Ind. Eng. and Mngt., Technion - Israel Inst. of Tech. Mar 2022
- Dept. of Statistics, George Mason University Sep 2021
- Dept. of Statistics and Data Science, Cornell University Nov 2020
- School of Community Health Sciences, University of Nevada, Reno Aug 2020
- Mathematics Dept., École Polytechnique Fédérale de Lausanne, Switzerland Nov 2019
- Dept. of Mathematics and Statistics, Texas Tech University Aug 2016
- Dept. of Statistics, Stanford University Nov 2013
- Dept. of Industrial Engineering and Management, Ben Gurion University, Israel Nov 2013

Other External Service

- Diversity, Equity & Inclusion Task Force, Committee of Presidents of Statistical Societies (COPSS) AY 2020-21
- Statistics/methodology mentor, Research Colloquium for Junior Investigators, American Psychiatric Association May 2017, May 2019

Professional Associations

- Lifetime member, Institute of Mathematical Statistics 2008 - Present
- Lifetime member, American Statistical Association 2008 - Present

Languages

- Fluent: English, Spanish, Hebrew.
- Basic: Portuguese, French.

Computer Skills

- Programming Languages: Matlab, R, Python, C++, HTML.
- Operating Systems: Unix/Linux, Windows.