

Mark Joseph B. Fiecas

Division of Biostatistics
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 Minneapolis, MN 55455
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I. Appointments**A. Academic Appointments**

- 2022 – Present **University of Minnesota**, Division of Biostatistics
Associate Professor (tenured)
- 2020 – Present **Masonic Institute for the Developing Brain**, Analytics Core
 Co-director
- 2016 – 2022 **University of Minnesota**, Division of Biostatistics
Assistant Professor (tenure-track)
- 2013 – 2016 **University of Warwick**, Department of Statistics
Harrison Early-Career Assistant Professor
- 2012 – 2013 **University of California at San Diego**, Department of Psychiatry
Post-doctoral Scholar
 PI: William Kremen

B. Other

- 2011 – 2012 **Technische Universität Kaiserslautern**, Fachbereich Mathematik
DAAD Scholar
 Advisor: Jürgen Franke
- 2010 **Merck Research Laboratories**, Imaging Department
Intern
 Advisor: Alexandre Coimbra
- 2009 **Merck Research Laboratories**, Biometrics Department
Intern
 Advisor: Richard Baumgartner
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II. Education

- 2007 – 2012 **Brown University**
 Ph.D. in Biostatistics
 Dissertation Title:
Statistical Methods for the Analysis of Functional Connectivity of Brain Signals
 Advisor: Hernando Ombao
- 2006 – 2007 **University of Illinois at Urbana-Champaign**
 Course work in mathematics and statistics

Advisor: Hernando Ombao

2004 – 2006 **University of Houston**
B.S. with Honors in Mathematics, minor in Computer Science

III. Honors and Awards

2015 Selected as one of the two participants to represent the UK in the 19th European Young Statisticians Meeting (EYSM)
2011 DAAD Scholarship, Brown University
2010 Winner of Best Student Paper Competition, New England Statistical Symposium
2009 – 2010 Brain Science Graduate Research Award, Brown University
2009 Levy Travel Award, Brown University
2007 – 2008 Sidney E. Frank Fellowship, Brown University
2005 and 2006 First Place Undergraduate Mathematics Competition, University of Houston
2005 Charles P. Benner Scholarship, University of Houston

IV. Research Support

A. Ongoing Research Support

1R01MH122473 (K. Cullen and M. Fiecas) 06/01/21-03/31/25 calendar months 2.28 (19%)
NIH \$1,531,729
Developmental Trajectories of Brain Network Strength and Flexibility: Relationship to Risk, Onset, and Course of Depression and Self-Harm in Youth.

1 K01 AA026349 (J. Camchong) 7/1/18-6/30/23 calendar months .24 (2%)
NIH \$137,948
Effects of Neuromodulation and Cognitive Training on Brain Networks Associated with Relapse in Alcohol Use Disorder

2R37NS077657 (J. Vitek) 6/1/18-7/31/22 calendar months .96 (8%)
NIH \$410,957
Neuronal Activity in MC and SMA during STN and GPi DBS in the Parkinsonian Monkey

5UG3DA048508-02 (K. Lim) 04/01/19-03/31/24 calendar months .6 (5%)
NIH \$255,163
Combined tDCS and Cognitive Training For the Treatment of Opioid Addiction

1RF1MH116987-01 (K. Lim) 9/1/18-8/31/22 calendar months .6 (5%)
NIH \$237,240
Increased thalamocortical connectivity in tdcS-potentiated generalization of cognitive training

R01-AG065636 (W. Pan) 3/1/20-2/21/25 calendar months 1.2 (10%)
NIH \$425,018
Discovering causal genes, brain regions and other risk factors for Alzheimer's disease

R01DA016351-09A1 (M. al'Absi)	07/01/19-06/30/23	calendar months 0.6 (5%)
NIH	\$314,171	
Endogenous Opioid Dysfunction, Stress, and Risk for Smoking Relapse		
R61MH123754-01 (C. Conelea)	07/01/20-06/30/25	calendar months .60 (5.0%)
NIH		
Transcranial Magnetic Stimulation to Augment Behavior Therapy for Tics		
R01NS117822-01 (J. Wang)	07/01/20-6/30/25	calendar months 1.20 (10.0%)
NIH	\$498,185	
Optimizing coordinated reset deep brain stimulation for Parkinson's disease		

B. Completed Research Support

1R01-MH107394 (K. Cullen)	8/1/16-5/31/21	calendar months 1.2 (10%)
NIH	\$364,008	
A Longitudinal Study Examining Three RDoC Constructs in Adolescents with Non-Suicidal Self-Injury		
1R01-MH107394 (K. Cullen)	06/01/17-05/31/19	calendar months 2.86 (23.9%)
NIH	\$98,009	
Admin Supplement for 1R01MH07394, A Longitudinal Study Examining Three RDoC Constructs in Adolescents with NSSI		

V. Publications

(*PhD Student or †Postdoctoral Scholar supervised by Dr. Fiecas as first author.)

A. Peer-reviewed Articles – Theory and Methods

1. †Hadj-Amar, B., Jewson, J., and **Fiecas, M.** (2022). Bayesian Approximation of Hidden Semi-Markov Models. *Bayesian Analysis*, accepted for publication.
2. Park, J.Y. and **Fiecas, M.** (2022). CLEAN: Leveraging spatial autocorrelation in neuroimaging data in clusterwise inference. *NeuroImage*, 255, 119192.
<https://doi.org/10.1016/j.neuroimage.2022.119192>
3. **Fiecas, M. B.**, Coffman, C., Xu, M., Hendrickson, T. J., Mueller, B., A., Klimes-Dougan, B., and Cullen, K. R. (2022). Approximate Hidden Semi-Markov Models for Dynamic Connectivity Analysis in Resting-State fMRI. *Statistics and Its Interface*, accepted for publication.
4. *Hart, B., Guindani, M., Malone, S., and **Fiecas, M.** (2022). Multi-Subject, Resting-State EEG Spectral Density Estimation Using Nested Dirichlet Processes. *Biometrics*, 78, 313-323.
<https://doi.org/10.1111/biom.13393>.
5. Granados-Garcia, G., **Fiecas, M.**, Shahbaba, B., Fortin, N., Ombao, H. (2022). Modeling brain waves as a mixture of latent processes. *Computational Statistics and Data Analysis*, 107409.

6. *Park, J. Y. and **Fiecas, M.**, for the Alzheimer's Disease Neuroimaging Initiative. (2021). Permutation-based inference for spatially localized signals in longitudinal MRI data. *NeuroImage*, 239, 118312. <https://doi.org/10.1016/j.neuroimage.2021.118312>
7. †Hadj-Amar, B., Finkenstadt, B., **Fiecas, M.**, and Huckstepp, R. (2021). Identifying the Recurrence of Sleep Apnea Using a Harmonic Hidden Markov Model. *Annals of Applied Statistics*, 15, 1171-1193. <https://doi.org/10.1214/21-AOAS1455>.
8. *Dai, N., Kang, H., Jones, G.L., and **Fiecas, M.B.**, for the Alzheimer's Disease Neuroimaging Initiative. (2021). A Bayesian latent spatial model for mapping the cortical signature of progression to Alzheimer's disease. *Canadian Journal of Statistics*, 49, 46-62. <https://doi.org/10.1002/cjs.11588>
9. *Hart, B., Malone, S., and **Fiecas, M.** (2021). A Grouped Beta Process Model for Multivariate Resting-State EEG Microstate Analysis on Twins. *Canadian Journal of Statistics*, 49, 89-106. <https://doi.org/10.1002/cjs.11589>.
10. *Park, J. Y., Polzehl, J., Chatterjee, S., Brechmann, A., and **Fiecas, M.** (2020). Semiparametric modeling of time-varying activation and connectivity in task-based fMRI data. *Computational Statistics & Data Analysis*, 150, 107006. <https://doi.org/10.1016/j.csda.2020.107006>.
11. †Hadj-Amar, B., Finkenstadt, B., **Fiecas, M.**, Levi, F., and Huckstepp, R. (2020). Bayesian Model Search for Nonstationary Periodic Time Series. *Journal of the American Statistical Association*, 115(531), 1320-1335. <https://doi.org/10.1080/01621459.2019.1623043>.
12. *Kaplan, A., Lock, E. F., **Fiecas, M.**, for the Alzheimer's Disease Neuroimaging Initiative. (2020). Bayesian GWAS with Structured and Non-Local Priors. *Bioinformatics*, 36(1), 17-25. <https://doi.org/10.1093/bioinformatics/btz518>.
13. *Dai, N., Jones, G., and **Fiecas, M.** (2020). Bayesian longitudinal spectral estimation with application to resting-state fMRI data analysis. *Econometrics and Statistics*, 15, 104-116. <https://doi.org/10.1016/j.ecosta.2019.01.002>.
14. Schnell, P., **Fiecas, M.**, and Carlin, B. (2020). credsubs: Multiplicity-Adjusted Subset Identification. *Journal of Statistical Software*, 94, 1-22.
15. **Fiecas, M.**, Leng, C., Liu, W., and Yu, Y. (2019). Spectral Analysis of High-Dimensional Time Series. *Electronic Journal of Statistics*, 13, 4079-4101. <https://doi.org/10.1214/19-EJS1621>.
16. Ombao, H., **Fiecas, M.**, Ting, C.M., and Low, Y.F. (2018). Statistical Models for Brain Signals With Properties that Evolve Across Trials. *NeuroImage*, 180, 609-618. <https://doi.org/10.1016/j.neuroimage.2017.11.061>.
17. *Hart, B., Cribben, I., and **Fiecas, M.**, for the Alzheimer's Disease Neuroimaging Initiative (2018). A Longitudinal Model for Functional Connectivity Using Resting-State fMRI. *NeuroImage*, 178, 687-701. <https://doi.org/10.1016/j.neuroimage.2018.05.071>.
18. **Fiecas, M.**, Franke, J., von Sachs, R., and Tadjuidje, J. (2017). Shrinkage Estimation for Multivariate Hidden Markov Models. *Journal of the American Statistical Association*, 112, 424-435.

<https://doi.org/10.1080/01621459.2016.1148608>.

19. **Fiecas, M.**, Cribben, I., Bahktiari, R., and Cummine, J. (2017). A variance components model for statistical inference on functional connectivity networks. *NeuroImage*, 149, 256-266.

<https://doi.org/10.1016/j.neuroimage.2017.01.051>.

20. **Fiecas, M.** and Ombao, H. (2016). Modeling the evolution of dynamic brain processes during an associative learning experiment. *Journal of the American Statistical Association*, 111, 1440-1453.

<https://doi.org/10.1080/01621459.2016.1165683>.

21. **Fiecas, M.** and von Sachs, R. (2014). Data-driven Shrinkage of the Spectral Density Matrix of a High-dimensional Time Series. *Electronic Journal of Statistics*, 8, 2975-3003.

<https://doi.org/10.1214/14-EJS977>.

22. Gorrostieta, C., **Fiecas, M.**, Ombao, H., Burke, E., and Cramer, S. (2013). Hierarchical Vector Autoregressive Models and their Applications to Effective Connectivity. *Frontiers in Computational Neuroscience*, 7:159. <https://doi.org/10.3389/fncom.2013.00159>.

23. **Fiecas, M.** and Ombao, H. (2011). The Generalized Shrinkage Estimator for the Analysis of Functional Connectivity of Brain Signals. *Annals of Applied Statistics*, 5, 1102-1125.

<https://doi.org/10.1214/10-AOAS396>.

[Winner of Best Student Paper Competition, New England Statistical Symposium, 2010.]

24. **Fiecas, M.**, Ombao, H., Linkletter, C., Thompson, W. and Sanes, J. (2010). Functional Connectivity: Shrinkage Estimation and Randomization Test. *NeuroImage*, 40, 3005-3014.

<https://doi.org/10.1016/j.neuroimage.2009.12.022>.

B. Peer-reviewed Articles – Collaborative

25. al'Absi, M., DeAngelis, B., **Fiecas, M.**, Budney, A., and Allen, S. (2022). Effects of regular cannabis and nicotine use on acute stress responses: Chronic nicotine, but not cannabis use, is associated with blunted adrenocortical and cardiovascular responses to stress. *Psychopharmacology*, accepted for publication. <https://doi.org/10.1007/s00213-022-06087-8>.

26. Wang, H., Rosenthal, B.S., Makowski, C., Lo, M.T., Andreassen, O.A., Salem, R.M., McEvoy, L.K., **Fiecas, M.**, Chen, C.H. (2021). Causal association of cognitive reserve on Alzheimer's disease with putative sex difference. *Alzheimer's and Dementia: Diagnosis and Disease Monitoring*, 13(1), e12270. <https://doi.org/10.1002/dad2.12270>

27. Wiglesworth, A., Falke, C., **Fiecas, M.**, Luciana, M., Cullen, K., & Klimes-Dougan, B. (2021). Brain signatures in children who contemplate suicide: Learning from the large-scale ABCD study. *Psychological Medicine*, 1-10. <https://doi.org/10.1017/S0033291721004074>.

28. Camchong, J., Haynos, A., Hendrickson, T., **Fiecas, M.**, Gilmore, C.S., Mueller, B.A., Kushner, M., Lim, K.O. (2021). Resting state functional connectivity underlying addiction domains predicts relapse in alcohol use disorder. *Cerebral Cortex*, accepted for publication.

<https://doi.org/10.1093/cercor/bhab374>.

29. Başgöze, Z., Mirza, S., Silamongkol, T., Hill, D., Falke, C., Thai, M., Westlund-Schreiner, M., Parenteau, A., Roediger, D., Hendrickson, T., Mueller, B., **Fiecas, M.**, Klimes-Dougan, B., and Cullen, K. (2021). Multi-modal Assessment of Sustained Threat in Adolescents with NSSI. *Development and Psychopathology*, 33(5), 1774-1792. <https://doi.org/10.1017/S0954579421000754>.
30. Boroda, E., Armstrong, M., Gilmore, C., Gentz, C., Fenske, A., **Fiecas, M.**, Hendrickson, T., Roediger, D., Mueller, B., Kardon, R., and Lim, K. (2021). Network Topology Changes in Chronic Mild Traumatic Brain Injury. *NeuroImage: Clinical*, 31, 102691. <https://doi.org/10.1016/j.nicl.2021.102691>.
31. Wang, H., Lo, M-T., Rosenthal, S., Makowski, C., Andreassen, O.A., Salem, R.M., McEvoy, L.K., **Fiecas, M.**, and Chen, C.H. (2021). Similar Genetic Architecture of Alzheimer's Disease and Differential *APOE* Effect between Sexes. *Frontiers in Aging Neuroscience*, 13, 256. <https://doi.org/10.3389/fnagi.2021.674318>.
32. Carosella, K.A., Wiglesworth, A., Silamongkol, T., Tavares, N., Falke, C.A., **Fiecas, M.B.**, Cullen, K.R., & Klimes-Dougan, B. (2021). Non-suicidal self-injury in the context of COVID-19: The importance of psychosocial factors for female adolescents. *Journal of Affective Disorders Reports*, 4, 100137. <https://doi.org/10.1016/j.jadr.2021.100137>.
33. Johnson, L., Aman, J., Yu, Y., Sanabria, D., Wang, J., Hill, M., Dharnipragada, R., Patriat, R., **Fiecas, M.**, Li, L. Schrock, L., Cooper, S., Johnson, M., Park, M., Harel, N., and Vitek, J. (2021). High-frequency pallidal oscillations in Parkinson's disease: a pathophysiological biomarker? *Movement Disorders*, 36(6), 1332-1341. <https://doi.org/10.1002/mds.28566>.
34. Allen, J., Pasnoor, M., Dimachkie, M., Ajroud-Driss, S., Brannagan, T., Cook, A., **Fiecas, M.B.**, Walton, T., Kissel, J., Merkies, I., Gorson, K., and Lewis, R. (2021). Quantifying treatment-related fluctuations in CIDP: Results of the GRIPPER study. *Neurology*, 96(14), e1876-e1886. <https://doi.org/10.1212/WNL.0000000000011703>.
35. Nakajima, M., Lemieux, A., **Fiecas, M.**, Chatterjee, S., Sarker, H., Saleheen N., Ertin, E, Kumar, S., al'Absi, M. (2020). Using novel mobile sensors to assess stress and smoking. *International Journal of Psychophysiology*, 158, 411-418. <https://doi.org/10.1016/j.ijpsycho.2020.11.005>.
36. Van de Winckel, A., De Patre, D., Rigoni, M., **Fiecas, M.**, Hendrickson, T., Larson, M., Jagadeesan, B., Mueller, B., Elvendahl, W., Streib, C., Ikramuddin, F., and Lim, K. (2020). Exploratory study of how cognitive multisensory rehabilitation restores parietal operculum connectivity and improves upper limb movements in chronic stroke. *Scientific reports*, 10(1), 1-11. <https://doi.org/10.1038/s41598-020-77272-y>.
37. Roy, A., Thai, M., Klimes-Dougan, B., Schreiner, M., Mueller, B., Albott, C., Lim, K., Roback, M., **Fiecas, M.**, Tye, S., and Cullen, K. (2020). Brain entropy and neurotrophic molecular markers accompanying clinical improvement after ketamine: Preliminary evidence in adolescents with treatment-resistant depression. *Journal of Psychopharmacology*, 35, 168-177. <https://doi.org/10.1177/0269881120928203>.
38. Thai, M., Başgöze, Z., Klimes-Dougan, B., Mueller, B., **Fiecas, M.**, Lim, K., Albott, C., and Cullen, K. (2020). Neural and behavioral correlates of clinical improvement to ketamine in adolescents with treatment resistant depression. *Frontiers in Psychiatry*, 11, 820.

<https://doi.org/10.3389/fpsy.2020.00820>.

39. Boroda, E., Sponheim, S., **Fiecas, M.**, and Lim, K. (2020). Transcranial Direct Current Stimulation (tDCS) Elicits Stimulus-Specific Enhancement of Cortical Plasticity. *NeuroImage*, 211, 116598. <https://doi.org/10.1016/j.neuroimage.2020.116598>.

40. Schreiner, M., Mueller, B., Klimes-Dougan, B., Begnel, E., **Fiecas, M.**, Hill, D., Lim, K., and Cullen, K. (2019). Characteristics of Self-Injury and Emotion and Behavior Regulation Associated with White Matter Microstructure in Adolescents with Non-Suicidal Self-Injury. *Frontiers in Psychiatry*, 10, 1019. <https://doi.org/10.3389/fpsy.2019.01019>.

41. Estrellas, K., **Fiecas, M.**, Azagury, A., Laulicht, B., Cho, D., Mancini, A., Reineke, J., Furtado, S., and Mathiowitz, E. (2019). Time-Dependent Mucoadhesion of Conjugated Bioadhesive Polymers. *Colloids and Surfaces B: Biointerfaces*, 173, 454-469. <https://doi.org/10.1016/j.colsurfb.2018.10.011>.

42. Tang, N., **Fiecas, M.**, Afolalu, E., and Wolke, D. (2017). Changes in Sleep Duration, Quality, and Medication Use are Prospectively Associated with Mental Health and Physical Wellbeing: Analysis of the UK Household Longitudinal Study. *Sleep*, 40(3). <https://dx.doi.org/10.1093/sleep/zsw079>.

43. Vuoksimaa, E., Panizzon, M., Chen, C.H., **Fiecas, M.**, Eyler, L., Fennema-Notestine, C., Hagler, D., Franz, C., Jak, A., Lyons, M., Neale, M., Rinker, D., Thompson, W., Tsuang, M., Dale, A., and Kremen, W. (2016). Is bigger always better? The importance of cortical configuration with respect to cognitive ability. *NeuroImage*, 129, 356-366. <https://doi.org/10.1016/j.neuroimage.2016.01.049>.

44. Vuoksimaa, E., Panizzon, M., Chen, C.H., **Fiecas, M.**, Eyler, L., Fennema-Notestine, C., Halger, D., Fischl, B., Franz, C., Jak, A., Lyons, M., Neale, M., Rinker, D., Thompson, W., Tsuang, M., Dale, A., and Kremen, W. (2014). The genetic association between neocortical volume and general cognitive ability is driven by surface area rather than thickness. *Cerebral Cortex*, 25, 2127-2137. <https://doi.org/10.1093/cercor/bhu018>.

45. Chen, C.H., **Fiecas, M.**, Gutierrez, E.D., Panizzon, M., Eyler, L., Vuoksimaa, E., Thompson, W., Fennema-Notestine, C., Hagler, D., Jernigan, T., Neale, M., Franz, C., Lyons, M., Fischl, B., Tsuang, M., Dale, A., and Kremen, W. (2013). Genetic topography of brain morphology. *Proceedings of the National Academy of Science*, 110, 17089-17094. <https://doi.org/10.1073/pnas.1308091110>.

46. Vuoksimaa, E., Panizzon, M., Chen, C.H., Eyler, L., Fennema-Notestine, C., **Fiecas, M.**, Fischl, B., Franz, C., Grant, M., Jak, A., Lyons, M., Neale, M., Thompson, W., Tsuang, M., Dale, A., and Kremen, W. (2013). Cognitive Reserve Modifies the Association Between Hippocampal Volume and Episodic Memory in Middle-Aged Men. *Neuropsychologia*, 51, 1124-1131. <https://doi.org/10.1016/j.neuropsychologia.2013.02.022>.

47. Gong, J., Campos, H., **Fiecas, M.**, McGarvey, S., Goldberg, R., Richardson, C., and Baylin, A. (2013). A case-control study of physical activity patterns and risk of non-fatal myocardial infarction. *BMC Public Health*, 13, 122. <https://doi.org/10.1186/1471-2458-13-122>.

48. **Fiecas, M.**, Ombao, H., van Lunen, D., Baumgartner, R., Coimbra, A., and Feng, D. (2013). Quantifying Temporal Correlations: A Test-retest Evaluation of Functional Connectivity in Resting-state fMRI. *NeuroImage*, 65, 231-241. <https://doi.org/10.1016/j.neuroimage.2012.09.052>.

49. Eyer, L., Chen, C.H., Panizzon, M., Fennema-Notestine, C., Neale, M., Jak, A., Jernigan, T., Fischl, B., Franz, C., Lyons, M., Grant, M., Prom-Wormley, E., Seidman, L., Tsuang, M., **Fiecas, M.**, Dale, A., and Kremen, W. (2012). A Comparison of Heritability Maps of Cortical Surface Area and Thickness and the Influence of Adjustment for Whole Brain Measures: A Magnetic Resonance Imaging Twin Study. *Twin Research and Human Genetics*, 15, 304-314. <https://doi.org/10.1017/thg.2012.3>.

50. Tate, D., Sampat, M., Harezlak, J., **Fiecas, M.**, Hogan, J., Dewey, J., McCaffrey, D., Branson, D., Russel, T., Conley, J., Taylor, M., Schifitto, G., Zhong, J., Daar, E., Alger, J., Brown, M., Singer, E., Campbell, T., McMahon, D., Tso, Y., Matesan, J., Letendre, S., Paulose, S., Gaugh, M., Tripoli, C., Yiannoutsos, C., Bigler, E., Cohen, R., Guttmann, C., and Navia, B. (2011). Regional areas and widths of the midsagittal corpus callosum among HIV-infected patients on stable antiretroviral therapies. *Journal for Neurovirology*, 17, 368-379. <https://doi.org/10.1007/s13365-011-0033-6>.

C. Manuscripts Submitted or in Revision

51. Wiglesworth, A., **Fiecas, M.B.**, Xu, M., Neher, A., Padilla, L., Carosella, K.A., Roediger, D.J., Mueller, B.A., Luciana, M., Klimes-Dougan, B., and Cullen, K.R. Sex-differences for the age-varying impacts of puberty on cortical thickness and associations with internalizing symptoms and suicidal ideation in early adolescence.

52. al'Absi, M., DeAngelis, B., Borodovsky, J., Sofis, M., **Fiecas, M.**, and Budney, A. Early Life Adversity and Substance Use: The Mediating Role of Mood and the Moderating Role of Impulsivity.

53. Rau, A., Abadi, A., **Fiecas, M.**, Gwon, Y., Bell, J.E., and Berman, J.D. Nationwide assessment of ambient monthly fine particulate matter (PM_{2.5}) and its associations with total, cardiovascular and respiratory mortality in the United States

54. Servadio, J., Convertino, M., **Fiecas, M.**, and Muñoz-Zanzi, C. Weekly forecasting of Yellow Fever occurrence and incidence via eco-meteorological dynamics

D. Conference Proceedings

55. **Fiecas, M.** and Ombao, H. (2015). The Evolving Evolutionary Spectrum. *Proceedings of the 19th European Young Statisticians Meeting*, 40-44.

56. **Fiecas, M.**, Franke, J., von Sachs, R., and Tadjuidje, J. (2013). Stable Estimates for High-dimensional Hidden Markov Models. *Oberwolfach Reports*, 48, 2766-2769.

E. Book Reviews

57. **Fiecas, M.** and Ombao, H. (2014). Review of "Time Series Modeling of Neuroscience Data" by Tohru Ozaki. *Journal of the American Statistical Association*, 109, 453-454.

F. Book Chapters

58. Cribben, I. and **Fiecas, M.** (2016). Functional Connectivity for Neuroimaging Data. *Handbook of Modern Statistical Methods: Neuroimaging Data Analysis* (eds. Ombao, H., Lindquist, M., Thompson, W., and Aston, J.). Boca Ranton, FL: CRC Press.

VI. Software

1. longitudinalFC (<https://github.com/mfiecas/longitudinalFC>), a suite of R and Rcpp functions for longitudinal analysis of functional connectivity networks in fMRI.
 2. longBayes (<https://github.com/mfiecas/longBayes>), an R package for longitudinal spectral analysis of fMRI signals.
 3. tvaac (<https://github.com/mfiecas/tvaac>), R functions for fitting time-varying activation and connectivity models.
 4. nbdp (<https://github.com/mfiecas/nbdp>), a suite of R and Rcpp functions for spectral density estimation using the nested Bernstein Dirichlet Prior model.
 5. ADcorticalthickness (<https://github.com/mfiecas/ADcorticalthickness>), a suite of R and Stan functions for fitting time-to-event models using an image as a predictor.
 6. GBP (<https://github.com/mfiecas/GBP>), a suite of R and Rcpp functions for fitting the Grouped Beta Process model to multivariate time series.
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VII. Teaching

A. University Courses

University of Minnesota

Fall 2022	PUBH 6414 – Biostatistical Literacy (In-person)
Fall 2021	PUBH 6414 – Biostatistical Literacy (Online)
Fall 2020	PUBH 6414 – Biostatistical Literacy (Online and Zoom Remote)
Fall 2019	PUBH 6414 – Biostatistical Literacy (Online and In-person)
Fall 2018	PUBH 6414 – Biostatistical Literacy (In-person)
Fall 2018	PUBH 7460 – Advanced Statistical Computing
Fall 2017	PUBH 6414 – Biostatistical Literacy (Online and In-person)
Fall 2017	PUBH 7460 – Advanced Statistical Computing
Fall 2016	PUBH 7460 – Advanced Statistical Computing

University of Warwick

Term 2, 2016	OxWaSP Module – Applied Statistics
Term 1, 2015	ST903 – Statistical Methods
Term 2, 2015	ST414 – Advanced Topics in Statistics
Term 1, 2014	ST903 – Statistical Methods
Term 2, 2014	ST414 – Advanced Topics in Statistics

B. Teaching Assistant

Brown University

Spring 2010 PHP 2511 – Applied Regression Analysis
Spring 2008 PHP 2501 – Introduction to Multivariate Regression
Fall 2007 PHP 2500 – Introduction to Biostatistics

C. Other

June 2014 **Co-Organizer and Instructor**, UC Irvine
Neuroimaging Workshop
April 2013 **Co-Organizer and Instructor**, UC Irvine
Neuroimaging Workshop
July 2012 **Instructor**, UC San Diego
Developing Novel Statistical Methods in NeuroImaging
June 2011 **Organizer and Instructor**, Brown University
Neuroimaging Workshop
October 2010 **Co-Organizer and Instructor**, Brown University
Neuroimaging Workshop

C. Student Mentoring – PhD Supervisor

University of Minnesota

2020 – 2021 Andrew Dileria, PhD Student in Biostatistics
Co-supervised with Dr. Lin Zhang
Dissertation Title: *New Estimation and Inferential Methods for Functional Connectivity Analysis*
Award: Statistical Methods in Imaging 2020 Student Award
First position after graduation: Assistant Professor at Grand Valley State University, Statistics Department

2017 – 2021 Adam Kaplan, PhD Student in Biostatistics
Co-supervised with Drs. Eric Lock and Thomas Murray
Award: i) James R. Boen Graduate Award
Dissertation Title: *Context-Driven Prior Distributions in Genome-Wide Association Studies, Medical Device Adaptive Clinical Trials, and Genetic Fine-Mapping*
First position after graduation: Advanced Research Fellow at the Center for Care Delivery and Outcomes Research at the Minneapolis VA

2017 – 2020 Jun Young Park, PhD Student in Biostatistics
Awards: i) MNDrive Fellowship, ii) 2019 ASA Statistics in Imaging Student Paper Competition Runner-up, iii) Statistical Methods in Imaging 2019 Student Award, iv) 2020 ASA Statistics in Imaging Student Paper Competition Runner-up
Dissertation Title: *Statistical Modeling and Inference for Neuroimaging and Genomics Data*
First position after graduation: Assistant Professor at the University of Toronto, Joint Position with the Department of Statistical Sciences and the Department of Psychology

- 2017 – 2019 Ning Dai, PhD Student in Statistics
Co-supervised with Dr. Galin Jones
Award: i) ISBA Travel Award
Dissertation Title: *Bayesian Spatial and Longitudinal Modeling of Neuroimaging Data and Inference via Markov Chain Monte Carlo*
First position after graduation: Data Scientist at Guardian Analytics
- 2016 – 2019 Brian Hart, PhD Student in Biostatistics
Awards: i) MNDrive Fellowship, ii) Jacob E. Bearman Student Achievement Award, iii) ISBA Travel Award
Dissertation Title: *Methods for Analyzing Multi-Subject Resting-State Neuroimaging Time Series Data*
First position after graduation: Principal Data Scientist at UnitedHealthGroup

D. Student Mentoring – 4th-Year/MS/MSc Supervisor

University of Minnesota

- 2022 David Schneck, MS Student in Biostatistics
Award: 2022 ASA Twin Cities Chapter Spring Meeting, Best Graduate Student Poster
- 2020 - 2021 Damon Leach, MS Student in Biostatistics
Thesis: *Measuring Pandemic Fatigue and Adherence During the COVID-19 Pandemic*
- 2021 Melissa Wong, MS Student in Biostatistics
Thesis: *The moderating effect of depression on early life adversity and marijuana use*
- 2020 – 2021 Wyatt Tarter, MS Student in Biostatistics
Thesis: *Reliability analysis of sliding windows assessing dynamic functional connectivity on fMRI data*
- 2019 – 2020 Dillon Corrigan, MS Student in Biostatistics
Thesis: *multinomss: An R Package for Retrospective Space-Time Cluster Detection Using the Multinomial Scan Statistic*
- 2018 – 2019 Shumeng Xu, MS Student in Statistics
Thesis: *Bayesian analysis of hierarchical autoregressive time series with performance comparison of different prior distributions*
- 2018 – 2019 Trang Le, MS Student in Biostatistics
Thesis: *Bayesian spectral estimation and test-retest reliability of low-frequency oscillation amplitudes in resting-state fMRI*
- 2018 Michael Shyne, MS Student in Biostatistics
Thesis: *C-reactive Protein Blood Serum Levels and Future Sleep Quantity: Examination by Multiple Analysis Methods*

- 2017 Kristine Kubisiak, MS Student in Biostatistics
Co-supervised with Dr. Lynn Eberly
Thesis: *Penalized models on non-conventional MRI contrasts to detect subtle abnormalities in white and grey matter in Multiple Sclerosis*
- 2016 – 2017 Alexey Korzhov, MS Student in Biostatistics
Thesis: *Association of GHQ-12 scores with sleep duration in the UKHLS population*

University of Warwick

- 2016 Alexis Caballero Souza, MSc Student in Statistics
Co-supervised with Dr. Chenlei Leng
Thesis: *Multivariate Ridge Regression with Covariance Estimation*
- 2015 – 2016 Iain Ford, 4th Year BSc Student in Statistics
Thesis: *Activity Recognition From Triaxial Accelerometers Using Spectral Analysis*
- 2015 – 2016 Alexander Bull, 4th Year BSc Student in Statistics
Thesis: *Extensions to K-Nearest Neighbours for Classification and Discrimination of Physical Activities*
- 2015 – 2016 Samantha Keung, 4th Year BSc Student in Statistics
Thesis: *Vector Autoregressive Modelling for the Analysis of Sleep Apnoea Data*
- 2015 Xingyu Jiang, MSc Student in Statistics
Thesis: *Seed-based Correlation Analysis of Functional Connectivity by Spatio-Temporal Models*
- 2015 Joseph Meagher, MSc Student in Statistics
Thesis: *Controls for Multiplicity in Resting State Functional Connectivity Analysis*

E. Student Mentoring – PhD Committees

University of Minnesota

- 2022 Sarah Samorodnitsky, PhD Student in Biostatistics
- 2020 – 2021 Katherine Knutson, PhD Student in Biostatistics
- 2019 – 2021 Andrew Dilernia, PhD Student in Biostatistics
- 2018 – 2019 Samuel Callisto, PhD Student in Experimental and Clinical Pharmacology
- 2018 – 2019 Kristen George, PhD Student in Epidemiology and Community Health
- 2017 – 2019 Jin Jin, PhD Student in Biostatistics
- 2018 – 2020 Joseph Servadio, PhD Student in Environmental Health Sciences
- 2018 Jaron Arbet, PhD Student in Biostatistics
- 2018 – 2019 Xuetong Sun, PhD Student in Statistics
- 2017 – 2019 Karl Oskar Ekvall, PhD Student in Statistics

University of Warwick

2014 - 2016 Matthew Gilbert, PhD Student in Statistics
2013 - 2016 Habib Ganjgahi, PhD Student in Statistics

F. Student Mentoring – MS Committees

University of Minnesota

2020 Jiawei Liu, MS Student in Biostatistics
2020 Wenlong Jiang, MS Student in Statistics
2019 Xuan Pu, MS Student in Biostatistics
2019 Qinxin Xu, MS Student in Data Science
2018 Meng Yao, MS Student in Biostatistics
2017 Nathan Rubin, MS Student in Biostatistics

VIII. Presentations

A. Invited Seminars / Webinars

1. American Statistical Association, Statistics in Imaging Webinar. September 2021.
2. Developmental Cognition and Neuroimaging Lab, University of Minnesota. April 2021.
3. PennSIVE, University of Pennsylvania. February 2021.
4. Department of Statistical Science, Southern Methodist University. October 2020.
5. Department of Statistics, The University of Auckland. August 2020.
6. Neuroimaging Statistics Oxford, Oxford Big Data Institute. June 2020.
7. Institut für Mathematische Stochastik, Otto-von-Guericke Universität Magdeburg. April 2020.
8. STOR-i Centre for Doctoral Training, Lancaster University. December 2019.
9. School of Statistics, University of the Philippines Diliman. August 2019.
10. Department of Biostatistics, Columbia University. April 2019.
11. AMCS/STAT, KAUST. February 2018.
12. Department of Statistics, University of Minnesota. March 2017.
13. MRC Biostatistics Unit. May 2016.
14. OxWaSP, University of Warwick. March 2016.
15. Department of Statistics, London School of Economics. February 2016.
16. Department of Mathematics and Statistics, University of Vermont. February 2016.
17. Division of Biostatistics, University of Minnesota. February 2016.
18. Department of Statistics, Rice University. January 2016.
19. Department of Statistics, University of Virginia. January 2016.
20. Department of Statistics, Lancaster University. November 2015.
21. School of Mathematics, University of Bristol. May 2015.
22. Stochastic Processes Group, University College London. March 2015.
23. OxWaSP, University of Oxford. March 2015.
24. Centre for Research in Statistical Methodology, University of Warwick. May 2014.
25. Multimodal Imaging Laboratory, UC San Diego. March 2013.
26. Department of Mathematics and Statistics, San Diego State University. March 2013.
27. Department of Mathematical Sciences, University of Texas at El Paso. March 2013.
28. Department of Statistics, University of Warwick. December 2012.
29. Department of Statistics, UC Irvine. December 2012.

30. Department of Biostatistics, Vanderbilt University. September 2012.
31. Institut für Stochastik, Karlsruhe Institut für Technologie. December 2011.
32. Institut für Angewandte Mathematik, Universität Heidelberg. November 2011.
33. Department of Psychiatry and Human Behavior, Butler Hospital. January 2011.

B. Conference and Workshop Presentations

1. ENAR, March 2022.
2. American Psychosomatic Society, March 2022.
3. Joint Statistical Meetings, August 2021.
4. CMStatistics, December 2020.
5. Joint Statistical Meetings, August 2020.
6. ENAR, March 2020.
7. CMStatistics, December 2019.
8. ISI World Statistics Congress, August 2019.
9. UTM Big Data Analysis of Neuroimaging and Genetics, August 2019.
10. Statistical Methods in Imaging, June 2019.
11. CMStatistics, December 2018.
12. Nonstandard Brain Image Analysis, June 2018.
13. CMStatistics, December 2017.
14. Joint Statistical Meetings, August 2017.
15. Institute for Research in Statistics and its Applications, May 2017.
16. UCI Data Science Initiative Symposium on Big Data and Brain Science, February 2017.
17. CMStatistics, December 2016.
18. Novel Statistical Methods in Neuroscience. June 2016.
19. Modelling Intensively-Collected Health Data. January 2016.
20. CMStatistics, December 2015.
21. 19th European Young Statisticians Meeting, September 2015.
22. 17th Meeting of New Researchers in Statistics and Probability, August 2015
23. CMStatistics, December 2014.
24. Joint Statistical Meetings. August 2014.
25. XXVII International Biometrics Conference. July 2014.
26. Inference for Changepoints and Related Processes. January 2014.
27. Joint Statistical Meetings. August 2013.
28. ENAR. March 2013.
29. XXVI International Biometrics Conference. August 2012.
30. 1st Conference of the International Society for Nonparametric Statistics. June 2012.
31. ENAR. March 2012.
32. XIII Reunión de Neuroimagen. October 2011.
33. New England Statistics Symposium. April 2011.
34. ENAR. March 2011.
35. XII Reunión de Neuroimagen. October 2010.
36. International Chinese Statistical Association. June 2010.
37. New England Statistics Symposium. April 2010.
38. ENAR. March 2010.
39. Joint Statistical Meetings. August 2009.
40. New England Statistics Symposium. April 2009.

C. Other Talks

Conference Session and Workshop (Co-)Organizer

1. *Imaging genetics*, 2019 CMStatistics.
2. *Recent developments in imaging genetics*, 2018 CMStatistics.
3. *CRiSM Master Class: Sparse Regression*, August 2016.
4. *CRiSM Master Class: Nonparametric Bayes*, May 2016.
5. *Statistical Innovations for Studying the Human Brain*, 2014 ENAR.
6. *Statistical Methods for Analyzing Neurophysiological Signals*, 2012 IBC.

Other

1. **Student paper competition reviewer**, ASA Imaging Section, 2019, 2021; Mental Health Statistics Section, 2019, 2020.
2. **Discussant**, IBS Journal Club, June 2018.

B. Department/Division- and School-level Services

2021 – Present	Equity, Diversity, and Inclusion Training Team School of Public Health, University of Minnesota
2020 – Present	Biostatistics Community Outreach and Engagement Division of Biostatistics, University of Minnesota
2020 – Present	DEI Strategic Planning Committee School of Public Health, University of Minnesota
2018 – 2019	Scholarship Committee School of Public Health, University of Minnesota
2018 – 2020	Recruiting Committee Division of Biostatistics, University of Minnesota
2016 – 2020	Seminar Committee Division of Biostatistics, University of Minnesota
2016 – 2018	Exam Committee Division of Biostatistics, University of Minnesota
2017	Orientation Emcee School of Public Health, University of Minnesota
2016 – 2017	Junior Faculty Meetings Co-Organizer School of Public Health, University of Minnesota
2016 – 2017	Faculty Search Committee Division of Biostatistics, University of Minnesota
2015 – 2016	OxWaSP General Support Oxford-Warwick Statistical Programme (OxWaSP) University of Oxford and University of Warwick
2015 – 2016	Master Class Co-Organiser Centre for Research in Statistical Methodology (CRiSM) University of Warwick
2014 – 2016	Seminar Co-Organiser Centre for Research in Statistical Methodology (CRiSM) University of Warwick
2013 – 2015	Statistics Consultant Risk Initiative and Statistical Consultancy Unit (RISCU)

University of Warwick

C. University Services

2006 – 2007 **Mathematics Tutor**
Office of Minority Student Affairs
University of Illinois at Urbana-Champaign

2005 **Mathematics Tutor**
Center for Academic Support and Assessment
University of Houston