

# IAN FELLOWS

## ABOUT

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Dr. Ian Fellows is a statistician and data scientist with research interests in the intersection of mathematical statistics and computer science. He has authored 24 papers and delved deeply into many sub-disciplines including artificial intelligence, where in 2007-08 his Texas Hold'em AI programs were ranked second in the world. In machine learning, his contributions to modeling social networks using exponential-family models have found applications in disease modeling. He is also the primary author of the open source Deducer suite of packages, which provide an easy to use graphical interface to the programming language R. His work in designing Deducer's statistical visualization interfaces won the prestigious John Chambers award.

Ian has held research appointments at UCLA and UCSD, as well as the position of Chief Scientist at Osprey Data, where he lead the data science team in building scalable algorithms and infrastructure for near real-time analytics on sensor data. Since 2009 his analytics consulting company has had a proven track record of bringing data science teams together to solve big data problems for a diverse range of corporate clients in fields such as education, internet marketing, and statistical software development.

## EDUCATION

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2009 – 2012	University of California, Los Angeles	Los Angeles, California
	<i>PhD in Statistics</i>	
2004 - 2006	San Diego State University	San Diego, California
	<i>M.S. in Statistics with a concentration in Biostatistics</i>	
1999 - 2003	University of Redlands	Redlands, California
	<i>BA with an Emphasis in Mathematics and Philosophy</i>	

## TECHNICAL WORK EXPERIENCE

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Dec. 2009– Present	<u>Fellows Statistics</u>
	<i>President / Lead Statistician</i>
	<ul style="list-style-type: none"><li>■ Statistical and machine learning consulting. Bringing together teams of focused analysts and engineers to solve your data needs.</li><li>■ Medical - Clinical trials, Design of experiments.</li><li>■ Internet - Multivariate A/B testing, User attrition modeling, Click optimization.</li><li>■ Industrial - Streaming sensor data, Failure prediction, Equipment optimization.</li><li>■ Analytics - Classification, Neural Networks, Prediction, Survival analysis, Unsupervised methods, Visualization / Design.</li><li>■ Big Data - Spark, HBase, Scalable algorithms.</li></ul>

Sept. 2014– Oct. 2015

Osprey Data

*Chief Scientist*

- Developed a scalable near real time analytical platform for performing statistics and machine learning on streaming IoT sensor data. This primarily leveraged Spark, HBase, and Kafka.
- Lead a team of data scientists solving failure prediction and pump optimization problems leveraging machine learning, petroleum physics, and subject matter expertise.

May 2006– Dec. 2009

University of California, San Diego: Dept. of Psychiatry

*Statistician*

- Provided statistical consulting services for university researchers
- Implemented advanced statistical models and techniques such as Mixed Models and GEE.
- Wrote custom R software to meet researchers' needs.
- Taught an applied course in linear mixed models.

June 2005– May 2006

San Diego State University Research Foundation

And September 2004– January 2005

*Data Analyst*

January 2005– May 2005

San Diego State University

*Teaching Associate*

## PROGRAMMING

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- R, Python, MATLAB, SAS (some), C\C++, Java, Javascript, SQL.
- Spark, Hadoop, HBase, Kafka, MapReduce.
- SPSS, Minitab.

## SOFTWARE

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- Contributing Author to the R packages: [irr](#) and [lawstat](#)
- Created poker playing programs INOT and Fell Omen in C++ and JAVA
  - INOT placed second in the AAAI'07 competition Fell Omen 2 placed second in AAAI'08
  - Both have been released as free software (GPL) and are available for download.
- [Deducer](#): A new graphical user interface for R.
- [DeducerExtras](#), [DeducerSpatial](#), [DeducerText](#): Plug-in packages for Deducer.
- [wordcloud](#): An R package for pretty word frequency plots.
- [OpenStreetMap](#): An R package interfacing with the OpenStreetMap project.
- [RDS](#), [RDS\\_Analyst](#): Provides functionality for carrying out estimation with data collected using Respondent-Driven Sampling.

## HONORS AND ACHIEVEMENTS

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Recipient of NSF Merit Travel Award (to New Zealand), Spring 2007.  
Recipient of a PICSES Data Analyst Fellowship, NSF DUE-0139378 (2004-2006)  
Second Place 2007 and 2008 AAAI Computer Poker Competition  
Full UCLA Graduate Fellowship Grant 2009-2010  
Google Summer of Code recipient (2010)  
Google Summer of Code mentor (2011)  
Recipient of the John M. Chambers Statistical Software Award (2011)  
CDC Grant 3U2GPS001468-04S1 Sub award 7438sc: Statistical Software for the Analysis of RDS Data (2012)  
NIH Grant 444070-HA-30245: Innovations in Network Modeling for HIV Prevention Studies (2013)  
NSF Grant 1357619: Scalable Model Based Inference for Social Networks from Complex Sampling Designs (2014)

## POPULAR PRESS ARTICLES ON MY WORK

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- *Rise of the Poker Bots*: San Diego Union Tribune, Front page. Aug. 12 2008
- *Artificially Intelligent Poker Pro Available for Download*: iTnews, Aug. 7 2008
- *Computer Poker Program Knows When to Hold'em*: Newswise, Aug. 5 2008

## RESEARCH PAPERS

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Fellows, I. E., Morris, M., Birnbaum, J. K., Dombrowski, J. C., Buskin, S., Bennett, A., & Golden, M. R. (2015). A New Method for Estimating the Number of Undiagnosed HIV Infected Based on HIV Testing History, with an Application to Men Who Have Sex with Men in Seattle/King County, WA. PLoS ONE, 10(7), e0129551. <http://doi.org/10.1371/journal.pone.0129551>

Fellows, I. E. (2014). Why (and When and How) Contrastive Divergence Works. arXiv preprint arXiv:1405.0602.

Fellows I., Handcock M., (2013). Exponential-family Random Network Models, <http://arxiv.org/abs/1208.0121>

Fellows I., Handcock M., (2013). Analysis of Partially Observed Networks via Exponential-family Random Network Models, <http://arxiv.org/abs/1303.1219>

Fellows I., (2012). Deducer: A data analysis GUI for R, Journal of Statistical Software, 49(8):1-15

Fellows I., (2010). The Minimality of the Mid P-value under the Estimated Truth Framework, Communications in Statistics: Theory and Methods, 40(2):244-54

Fellows I., (2008). Pseudo-Optimal Solutions to Texas Hold'em Poker with Improved Chance Node Abstraction. (Technical Report UCSD)

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Vahia I., Depp C., Palmer B., Fellows I., Golshan S., Thompson W., Allison, M., Jeste, D. Correlates

of spirituality in older women *Aging & Mental Health* Vol. 15, Iss. 1, 2010

- Fang D., Young C., Golshan S., Fellows I., Moutier C., Zisook S., Depression in Premedical Undergraduates: A Cross-Sectional Survey *Prim Care Companion, J Clin Psychiatry*. 2010; 12(6)
- Vahia, I. V., Palmer, B. W., Depp, C., Fellows, I., Golshan, S., Kraemer, H. C. and Jeste, D. V. (2010), Is late-onset schizophrenia a subtype of schizophrenia?. *Acta Psychiatrica Scandinavica*, 122: 414–426
- Kasckow J., Fellows I., Golshan S., Solorzano E., Meeks T., Zisook S., (2010). Treatment of Subsyndromal Depressive Symptoms in Middle-Age and Older Patients With Schizophrenia: Effect of Age on Response. *American Journal of Geriatric Psychiatry, Am J Geriatr Psychiatry*. 2010 September; 18(9): 853–857
- Kasckow J., Lanouette N., Patterson T., Fellows I., Golshan S., Solorzano E., Zisook S. (2010) Treatment of subsyndromal depressive symptoms in middle-aged and older adults with schizophrenia: effect on functioning. *International Journal of Geriatric Psychiatry International Journal of Geriatric Psychiatry*, Volume 25, Issue 2, pages 183–190
- Nyer M., Kasckow J., Fellows I., Lawrence E., Golshan S., Solorzano E., Zisook S., (2010). The relationship of marital status and clinical characteristics in middle aged and older patients with schizophrenia and depressive symptoms. *Clinical Schizophrenia and Related Psychoses Annals of Clinical Psychiatry* 2010;22(3):172-179
- Zisook S, Kasckow JW, Lanouette NM, Golshan S, Fellows I, Vahia I, Mohamed S, Rao S. (2010) Augmentation with citalopram for suicidal ideation in middle-aged and older outpatients with schizophrenia and schizoaffective disorder who have subthreshold depressive symptoms: a randomized controlled trial. *J Clin Psychiatry*. 2010 Jul;71(7):915-22. Epub 2010 Mar 9.
- Palmer B., Savla G., Fellows I., Twamley E., Jeste D., Lacro J., (2010). Do people with schizophrenia have differential impairment in episodic memory and/or working memory relative to other cognitive abilities? *Schizophrenia Research*, Volume 116, Issue 2, Pages 259-265
- Jeste D., Palmer B., Golshan S., Eyler L., Dunn L., Meeks T., Glorioso D., Fellows I., Kraemer H., Appelbaum P., (2009). Multimedia Consent for Research in People with Schizophrenia and Normal Subjects: A Randomized Controlled Trial, *Schizophrenia Bulletin* 35(4) 719-729
- Zisook S., Kasckow J., Golshan S., Fellows I., Solorzano E., Lehman D., Mohamed S., Jeste D., (2009). Citalopram Augmentation for Subsyndromal Depressive Symptoms in Middle-Aged and Older Patients with Schizophrenia and Schizoaffective Disorder: A Randomized Controlled Trial, *Journal of Clinical Psychiatry*, 70(4):562-71
- Jeste D., Jin H., Golshan S., Mudaliar S., Glorioso D., Fellows I., Kraemer H., Arndt S. (2009). Discontinuation of Quetiapine From an NIMH-Funded Trial Due to Serious Adverse Events *Am J Psychiatry* 2009 166: 937-938
- Folsom D., Depp C., Palmer B., Mausbach B., Golshan S., Fellows I., Cardenas V., Patterson T., Kraemer H., Jeste D., (2008) Physical and mental health-related quality of life among older people with schizophrenia, *Schizophrenia Research*, 108(1) 207-213
- Dunn L., Kim D., Fellows I., Palmer B., (2008). Worth the Risk? Relationship of Incentives to Risk and Benefit Perceptions and Willingness to Participate in Schizophrenia Research, *Schizophrenia Bulletin. Schizophr Bull*, 35 (4): 730-737
- Roseman A., Kasckow J., Fellows I., Osatuke K., Patterson T., Mohamed S., Zisook S., (2008). Insight, Quality of Life, and Functional Capacity in Middle-Aged and Older Adults with Schizophrenia, *International Journal of Geriatric Psychiatry*, 23: 760-765
- Zisook S., Montross L., Kasckow J., Mohamed S., Palmer B., Patterson T., Golshan S., Fellows I.,

- Lehman D., Solorzano E., (2008). Subsyndromal Depressive Symptoms in Middle aged and Older Persons with Schizophrenia, *American Journal of Geriatric Psychiatry* 15:1005-1014
- Kasckow J., Patterson T., Fellows I., Golshan S., Solorzano E., Mohamed S., Zisook S., (2008). Functioning in Middle Aged and Older Patients with Schizophrenia and Depressive Symptoms: Relationship to Psychopathology, *American Journal of Geriatric Psychiatry*, 16: 660-663
- Fellows I., (2006). Partnerships Involving the Scientific Community in Elementary Schools (PISCES), a Randomized Controlled Crossover Study Implementing Inquiry Based Science in Elementary Classrooms: 2003-04, 2004-05 Combined Report, Technical Report, SDSU