# Michael Sachs

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am a data scientist, physicist and designer who is interested in the stories data can tell. I have led teams, been part of technology start-ups, and consulted with companies both large and small. My work has been published in scientific journals, covered by the popular science press, and I have given talks at scientific conferences in Hawaii, Singapore, San Francisco, Santa Fe and New York. I studied physics at Columbia University and the University of California, Davis, and visual design at Virginia Commonwealth University. I am a NASA Earth and Space Science fellow and a Santa Fe Institute Complex Systems Summer School alumni, and most recently, the head of Product at FLYR in San Francisco.

## Technologies

### Languages

Python and SQL are my languages of choice. I've worked with: JavaScript, C, C++, HTML, CSS, Java, php, CQL, bash shell scripting, Objective C, IDL, Mathematica, MatLab, lisp, and ActionScript.

### Applications, Modules, Libraries and Frameworks

My most recent experience is with: Spark, Databricks, Numpy, Scikit-learn, TensorFlow/Keras, Scipy, Pandas, MySQL/PostgreSQL, Google BigQuery, Matplotlib, Jira, and Confluence. In the past I have used: SQLAlchemy, Celery, Cassandra, Redshift, D3.js, Boto, Flask, HDF5, Django, JQuery, PIL, Ajax, Hadoop, WordPress, MPI, Mathematica, HEALPix, GeoFEST, LaGriT, Polspice, Adobe Illustrator, and Adobe Photoshop.

### Cloud Platforms

Amazon Web Services, Google Cloud Platform

## Professional Experience

### FLYR

A SaaS platform that applies advanced AI to airline ticket pricing. Backed by Peter Thiel and JetBlue Technology Ventures.

**Creative Director/Lead Designer** March 1997 to June 2002

- Designed and implemented user interface strategies for over 30 companies in market sectors ranging from healthcare and education to broadband and packaged consumer goods.
- Led an award-winning team of designers and user interface engineers through mentoring, selective hiring, and the development of management systems.
- Guided the development of Xperts software design methodology in collaboration with other company executives.
- Facilitated the acquisition of new business by developing sales strategies, project estimates and bid presentations.
- Directed the organizational wide acceptance of new user interface and design technologies.


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### Radius Intelligence

Delivering B2B marketing data backed by The Network of Record, the most comprehensive, accurate and up-to date directory of businesses in the United States. Backed by Founders Fund and American Express Ventures.

Discovery Digital Networks

Creating original short form digital video content on topics ranging from technology to philosophy. A division of Discovery Communications.

Department of Physics, University of California, Davis

Department of Astronomy and Astrophysics, Columbia University

Mikesachs.com

Weill Cornell Medical College/NewYork-Presbyterian Hospital

Xperts Inc.

Letterbrain.com

## Education

University of California, Davis

Columbia University

Virginia Commonwealth University

## Publications

*Parametrizing Physics-Based Earthquake Simulations*
K. W. Schultz, M. R. Yoder, J. M. Wilson, E. M. Heien, **M. K. Sachs** , J. B. Rundle, and D. L. Turcotte
Pure and Applied Geophysics(2016)

*Virtual Quake: Statistics, Co-Seismic Deformations and Gravity Changes for Driven Earthquake Fault Systems*
K. W. Schultz, **M. K. Sachs** , E. M. Heien, M. R. Yoder, J. B. Rundle, D. L. Turcotte, and A. Donnellan
International Symposium on Geodesy for Earthquake and Natural Hazards (GENAH)14529-37(2015)

*Simulating Gravity Changes in Topologically Realistic Driven Earthquake Fault Systems: First Results*
K. W. Schultz, **M. K. Sachs** , E. M. Heien, J. B. Rundle, D. L. Turcotte, and A. Donnellan
Pure and Applied GeophysicsIn press(2014)

*Self-Organizing Complex Earthquakes: Scaling in Data, Models, and Forecasting*
**M. K. Sachs** , J. B. Rundle, J. R. Holliday, J. Gran, M. Yoder and W. Graves
"Self-Organized Criticality Systems"Open Academic Press(2013)

*A Comparison among Observations and Earthquake Simulator Results for the allcal2 California Fault Model*
T. E. Tullis, K. Richards-Dinger, M. Barall, J. H. Dieterich, E. H. Field, E. M. Heien, L. H. Kellogg, F. Pollitz, J. B. Rundle, **M. K. Sachs** , D. L. Turcotte, S. N. Ward and M. B. Yikilmaz
Seismological Research Letters83994-1006(2012)

*Generic Earthquake Simulator*
T. E. Tullis, K. Richards-Dinger, M. Barall, J. H. Dieterich, E. H. Field, E. M. Heien, L. H. Kellogg, F. Pollitz, J. B. Rundle, **M. K. Sachs** , D. L. Turcotte, S. N. Ward and M. B. Yikilmaz
Seismological Research Letters83959-963(2012)

*Virtual California Earthquake Simulator*
**M. K. Sachs** , E. M. Heien, D. L. Turcotte, M. B. Yikilmaz, J. B. Rundle and L. H. Kellogg
Seismological Research Letters83973-978(2012)

*Forecasting Earthquakes: The RELM Test*
**M. K. Sachs** , D. L. Turcotte, J. R. Holliday and J. B. Rundle
Computing in Science and Engineering1443(2012)

*Understanding Long-Term Earthquake Behavior through Simulation*
E. M. Heien and **M. K. Sachs**
Computing in Science and Engineering1410(2012)

*Black swans, power laws, and dragon-kings: Earthquakes, volcanic eruptions, landslides, wildfires, floods, and SOC models*
**M. K. Sachs** , M. R. Yoder, D. L. Turcotte, J. B. Rundle and B. D. Malamud
European Physical Journal Special Topics205167-182(2012)

*Implications of the RELM test of earthquake forecasts in California*
**M. K. Sachs** , Y. T. Lee, D. L. Turcotte, J. R. Holliday and J. B. Rundle
Research in Geophysics2e10(2012)

*Evaluating the RELM test results*
**M. K. Sachs** , Y. T. Lee, D. L. Turcotte, J. R. Holliday and J. B. Rundle
International Journal of Geophysics2012(2012)

*Earthquake precursors: activation or quiescence?*
J. B. Rundle, J. R. Holliday, M. Yoder, **M. K. Sachs** , A. Donnellan, D. L. Turcotte, K. F. Tiampo, W. Klein and L. H. Kellogg
Geophysical Journal International187225-236(2011)

*Results of the Regional Earthquake Likelihood Models (RELM) test of earthquake forecasts in California*
Y. T. Lee, D. L. Turcotte, J. R. Holliday, **M. K. Sachs** , J. B. Rundle, C. C. Chen and K. F. Tiampo
Proceedings of the National Academy of Sciences (USA)10816533-16538(2011)

*Testing Lattice Quantum Gravity in 2+1 Dimensions*
**M. K. Sachs**
arXiv:1110.6880 [gr-qc](2011)

# Awards and Recognition

# Conferences

## AGU 2013

## AGU 2012

## EcoSummit 2012

## AOGS 2012

## AGU 2011

## SCEC 2011

ACES 2011

## Teaching Experience

Department of Physics, University of California, Davis

## Press

scientificamerican.com

Test Pits Earthquake Forecasts against Each Other :
http://www.scientificamerican.com/article.cfm?id=test-pits-earthquake-forecasts

msnbc.com

Flagging quake hotspots an inexact science :
http://www.msnbc.msn.com/id/44676488/ns/technology_and_science-science/#.TrB2c2B8tjB

UCDavis News

Assessing California earthquake forecasts :
http://www.news.ucdavis.edu/search/news_detail.lasso?id=10025

NASA

Managing the Deluge of 'Big Data' From Space :
http://www.jpl.nasa.gov/news/news.php?release=2013-299
QuakeSim and NASA Mobile App Win NASA Software Award :
http://www.nasa.gov/topics/earth/features/quakesim20120920.html