

# Benjamin Fox

## | RESEARCH INTERESTS

Data science for social good and health. Areas of interest include consumer wearables, public health, metabolomics, and natural language processing.

## | EDUCATION

**University of California, Santa Barbara, Santa Barbara, CA** **June 2019**  
Master of Science, Computer Science; Graduate Certificate in Technology Management  
*Project:* “Metabolomics Techniques and Assessment of Acute Kidney Injury on Distant Organ Function”  
*Committee:* Linda Petzold (chair), Sarah Faubel, Xifeng Yan

**Pepperdine University, Malibu, CA** **April 2017**  
Bachelor of Science, Physics; Minor in Computer Science

## | RESEARCH EXPERIENCE

**Graduate Student, University of California, Santa Barbara** **2017-2019**  
Department of Computer Science  
*Advisors:* Linda Petzold and Sarah Faubel

- Studied the effects of acute kidney injury (AKI) on mice to develop metabolic profiles and approaches for diagnosing and treating AKI in humans
- Performed univariate and multivariate statistics on metabolomics data to decipher AKI’s effect on the heart, lung, and liver in mice
- Found that AKI is associated with dramatic changes in heart, lung, and liver metabolism, ATP depletion, and oxidative stress, with the most dramatic effects in the heart

**Research Intern, University of Colorado Anschutz Medical Campus** **2016-2017**  
Division of Renal Diseases and Hypertension  
*Advisor:* Sarah Faubel

- Studied the effect of early peritoneal dialysis (PD) on lung inflammation after acute kidney injury (AKI) in mice
- Found that high-doses of PD had no effect on AKI, but effectively cleared serum IL-6, and dramatically reduced lung inflammation, while low-doses of PD had no effect on any of these three outcomes
- Worked with a team of researchers to develop additional laboratory, computational, and bioinformatics methods to explore the effects of AKI

**Research Intern, Pepperdine University** **2015-2016**  
Natural Science Division  
*Advisor:* Gerard Fasel

- Studied magnetic reconnection to investigate the interaction of solar winds and the Earth’s magnetosphere
- Analyzed camera and graphical data to find poleward moving auroral forms (PMAFs)
- Conducted funded (Explorer’s Club and Pepperdine University) research in December 2016 for data collection and observation at the Kjell Henriksen Observatory in Longyearbyen, Norway

## | WORK EXPERIENCE

## **Data Scientist, Evidation Health; San Francisco, CA**

**2019-Present**

- Constructed physical activity features from consumer wearable device data, such as personalized activity intelligence, to help users better understand their medical conditions and health
- Built infrastructure to deliver physical activity and other health insights in visual and textual format to user population of four million people
- Paired with clients for research studies on women's health and others to better understand disease using novel technologies and statistical techniques
- Developed dashboards for research study monitoring, study recruiting and targeting, and to understand key business metrics and performance indicators
- Worked across teams to help advance research studies, understand the user population, and drive the business forward
- Provided data, observations, and visualizations for the company blog
- Mentored and taught peers data science techniques and tools

## **Product Manager, Ernst and Young (EY) Global Innovation; Palo Alto, CA**

**2018-2019**

- Helped build and scale the GigNow platform for enterprises to transform their talent management, sourcing, and hiring process
- Communicated with users, analyzed and drew insights from user data to make informed decisions around product features
- Discovered solutions with vendors for integrating external APIs for services within the GigNow platform
- Led engineering and design teams in the agile product development process to breakdown and build product features through epics and user stories
- Worked with the product team to continually iterate, roadmap, and build MVPs

## **| PUBLICATIONS**

### **Published in peer-reviewed journals**

1. **Fox BM**, Gil HW, Kirkbride-Romeo L, [and 18 others including Faubel S] “Metabolomics assessment reveals oxidative stress and altered energy production in the heart after ischemic acute kidney injury in mice.” *Kidney Int.* 2019 03; 95(3):590-610. PMID: 30709662.
2. Altmann C, Ahuja N, Kiekhaefer CM, Andres Hernando A, Okamura K, Bhargava R, Duplantis J, Kirkbride-Romeo LA, Huckles J, **Fox BM**, Kahn K, Soranno D, Gil HW, Teitelbaum I, Faubel S “Early peritoneal dialysis reduces lung inflammation in mice with ischemic acute kidney injury.” *Kidney Int.* 2017 08; 92(2):365-376. PMID: 28318621.

### **Submitted Manuscripts**

1. Ambruso S, Gil HW, **Fox BM**, Park B., Altmann C, Bagchi R, Baker P, Faubel S “Lung metabolomics after ischemic acute kidney injury reveals increased oxidative stress, altered energy production, and ATP depletion” (under revision)

## **| TEACHING EXPERIENCE**

**Graduate Teaching Assistant, University of California, Santa Barbara**

**Winter, Spring 2019**

*Course:* Business Strategy

*Responsibilities:*

- Administered and managed the CAPSIM business simulation to ~55 students
- Presented CAPSIM results weekly to the class and explained the implications of each team's business decisions
- Held office hours weekly to elaborate concepts to students
- Provided constructive feedback on students' assignments and reports and met with students to offer guidance and support

**Graduate Teaching Assistant, University of California, Santa Barbara**

**Fall 2018**

*Course:* Artificial Intelligence

*Responsibilities:*

- Led two discussion sessions and office hours weekly to elaborate AI concepts to ~100 students
- Provided constructive feedback on students' assignments and reports
- Devised coding homework assignments with other TA

**Graduate Teaching Assistant, University of California, Santa Barbara**

**Winter, Spring 2018**

*Course:* Physics 201 Electricity and Magnetism

*Responsibilities:*

- Led two labs and office hours weekly covering concepts in electricity and magnetism
- Offered optional review sessions to go over homework problems and other questions to help students prepare for tests
- Provided constructive feedback on students' tests and lab reports

**Graduate Teaching Assistant, University of California, Santa Barbara**

**Fall 2017**

*Course:* Fluid Mechanics

*Responsibilities:*

- Held office hours weekly covering concepts in fluid mechanics and assisted students with homework problems
- Provided constructive feedback on students' tests and homework assignments

## | PRESENTATIONS

### Oral Presentations

1. **Fox BM** "Metabolomics Techniques and Assessment of Acute Kidney Injury on Distant Organ Function" University of California, Santa Barbara, Master's Project Presentation 2019
2. Faubel S, **Fox BM** "The Heart After AKI Looks like an MI, and How to Use and Interpret Metabolomics Data" University of Colorado's Renal Research Conference 2017

### Poster Presentations

1. Fasel G, Brandt TG, **Fox BM**, Rothballer A, Gribble M, "The Brightening History of Poleward Moving Auroral Forms" American Geophysical Union Fall Conference 2016
2. Fasel G, Brandt TG, **Fox BM**, Rothballer A, Gribble M, "A Study of the Different Classes of Poleward Moving Auroral Forms" American Geophysical Union Fall Conference 2017

## | HONORS AND GRANTS

University of California, Santa Barbara Harold Frank Scholarship (2018)

Explorer's Club Research Grant (2016)

Pepperdine Natural Science Award (2016)

## | TECHNICAL SKILLS

*Programming:* Python, Pyspark, SQL, R, Bash

*Data Science:* data wrangling and visualization, time series analytics, NLP, metabolomics, bioinformatics, classification, clustering, information retrieval, computer vision

*Other Technologies:* LaTeX, Databricks, Domino Data Lab, Snowflake, Quicksights, Mixpanel, GitHub, Google Colab, Jira, Google Suite, Office Suite

## | LEADERSHIP

**Co-President, Pepperdine University Physics Club** **2016-2017**

- Arranged events, organized and delegated research tasks, applied for funding, and developed and planned research trip to Longyearbyen, Norway

**Team Captain, Pepperdine University Men's Cross Country and Track Team** **2015-2017**

- Led practices and workouts and ran too much!

## | MEMBERSHIP

Metabolomics Society (2017-2018)

American Geophysical Union (2015-2017)