CALEB E. STRAIT

DATA SCIENTIST

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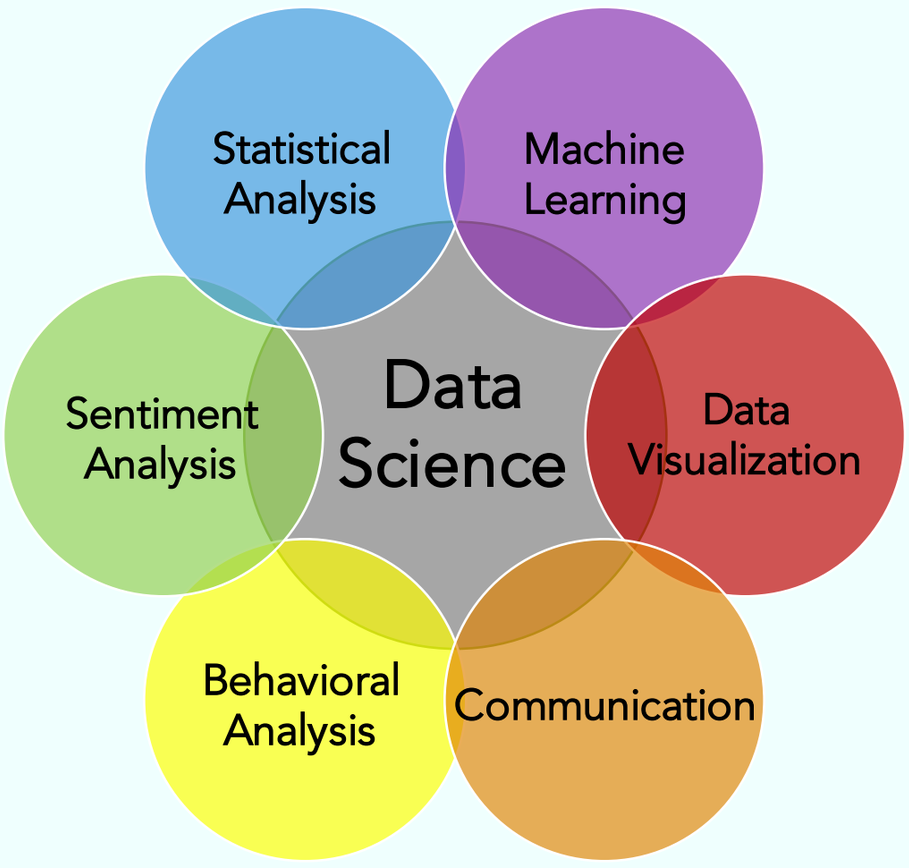
Skills



Languages

MATLAB - Psychtoolbox
Python - Flask, Pandas, Numpy, Natural Language Toolkit, Jupyter Notebook, SciKit-Learn, Matplotlib
Web - HTML, CSS, Javascript, API
System - Mac OS, Windows, Linux
SQL, Java, C++/C#, SPSS

Education

University Of Rochester

Ph.D., Brain & Cognitive Sciences
May 2016
M.A., Brain & Cognitive Sciences
January 2014

Oberlin College

B.A., Psychology
Concentration, Cognitive Science
Minor, Computer Science
May 2011

EXPERIENCE

Data Science Fellow — Insight Data Science — January 2017 - Present

Built "Nextgame," a web application that uses reinforcement learning to give increasingly personalized video game recommendations by prompting user feedback for each recommended game. Hosted at nextgame.site.

- Designed an intuitive user interface to maximize user feedback with respect to game recommendations and therefore enable real-time improving recommendations through reinforcement learning.
- Pieced together a functioning web app in three weeks: wrote a custom recommendation algorithm in Python, collected data with web scraping and the igdb.com API, stored data in a PostgreSQL database, implemented automatic SQL queries to fetch data for the user, cleaned data with regular expressions, Pandas, and Numpy, and hosted with Amazon Web Services via Flask.
- Validated the app's performance after saving usage data from 42 users. Used a binary cumulative density function test on logistic regression coefficients to show that there were significantly more users for whom upvoting increased over time than we would expect by chance.

Doctoral Researcher — University of Rochester — June 2011 - May 2016

Studied the computational underpinnings of human choice processes. Analyzed behavioral choice data from custom economic tasks: Added neural data collection for the tasks producing the cleanest behavioral data. Modeled neural responses as a function of key features in concurrent behavioral and eye-movement data.

- Designed and programmed 30+ custom economic decision tasks in a lab capable of recording the activity of single brain cells en-mass mid-task. Led a team of three laboratory technicians and four research assistants in adding neural data collection during the 4 tasks producing the cleanest behavioral data.
- Wrote custom logistic regression models of neuronal spike frequencies in reward-specialized brain regions as functions of decision task parameters and choice behavior data. Demonstrated that particular brain regions encode task information in a way that computationally subtracts an option's pros from its cons. Compared this linear model's fit to that of a pure information-theoretic analysis: mutual information between neural response and encoded task parameters.
- Published four 1st-author peer-reviewed articles in some of the highest impact-factor journals in neuroscience. Wrote and successfully defended a 150-page doctoral thesis around these works, "Neural Mechanisms of Reward-Based Choice," through a series of public departmental talks.
- Organized, chaired, and spoke at a symposium, "The Neural Basis of Economic Choice," at neuroscience's biggest conference, the Society for Neuroscience's Annual Meeting.

Adjunct Professor — University of Rochester — 2014 & 2015

- Designed and taught a 100-level college course, "Foundations of Cognitive Science."
- Wrote, presented, and tested two iterations of 16 lectures for undergraduates on the current understanding of the human brain as a biological computer.

Research Assistant — Boston College's Affective Science Lab — 2009 & 2010

- Researched how emotional priming affects the assessment of and reaction to facial expressions.
- Survey administration, behavioral data collection from emotional priming stimuli and facial expression stimuli.