

# Amy Sillman, Ph. D.

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## EXPERIENCE

**Metis** · San Francisco, CA - Remote Jan. 2021 to Mar. 2021  
**Data Scientist**

Metis is an ACCEP accredited 12-week immersive data science bootcamp. Designed and delivered five projects covering statistical modeling, data visualization, machine learning, and app development. See projects section.

**Sillman Consulting, LLC** · San Francisco, CA 2011 to Current  
**Scientific Consultant**

Independent consulting service offering scientific writing, editing, literature review, assay design, support, and advising services to clients in the areas of biotechnology, biomedicine, pharmaceuticals, and gifted and talented education. Clients include: Pathway Therapeutics, Center for Excellence in Education, and Esri Press

Massachusetts Institute of Technology Jan. 2017 to Aug. 2020  
**Director, Research Science Institute (RSI)**

Co-sponsored by the Center for Excellence in Education and the MIT Office of the Provost, RSI is the premier summer STEM research program for gifted and talented high school students.

- Organized selection committee process and application reading
- Selected and managed program staff of 25.
- Secured research projects for 80-85 US and international high school students at MIT, Harvard, Northeastern University, and other universities and private companies in the Boston-Cambridge area
- In 2020, directed the first ever all-online RSI during the COVID-19 pandemic. Led the program for 86 students spread across 3 continents and 16 hours of time zones

Dammam, Kingdom of Saudi Arabia Jan. 2015 to Nov. 2016  
**Director, Saudi Aramco Research Science Initiative**

Created and directed the Saudi Aramco Research Science Initiative for Girls, the first summer STEM research program for gifted high school girls in Saudi Arabia; co-sponsored by the Center for Excellence in Education.

- Organized the program schedule within the constraints of Ramadan and daily religious observances
- Hired and managed American program staff of 12 and advised on travel and cultural concerns
- Directed daily program operations at three separate sites.
- Handled on-site staff issues; mentored tutorial staff and dealt with student academic, disciplinary, and mental health concerns.

**Exelixis, Inc.** May 2007 to May 2010  
**Research Scientist II, Molecular & Cellular Pharmacology**

- Led development and validation of NK cell cytotoxicity assays for PI3Kdelta and inflammation drug discovery programs.
- Managed PBMC Clinical Pharmacodynamic Biomarker Group, including 4 Research Associates.
- Supported Translational Medicine Department by validating and implementing biomarker assays for analysis of clinical pharmacodynamics samples (fixed blood, fixed bone marrow aspirate or peripheral blood mononuclear cell lysate) from 9 of Exelixis's oncology clinical trials.

**University of California Davis** · Davis, CA Mar. 2000 to June 2003  
**Postdoctoral Scholar**

Conducted cell biology research: reactive oxygen signaling in migrating human epidermal keratinocytes, galvanotaxis studies in keratinocytes and dermal fibroblasts.

**University of California San Francisco** · San Francisco, CA Aug. 2003 to Dec. 2006  
**Postdoctoral Scholar-Fellow**

Conducted cell biology research: growth factor signal transduction, pH sensitivity of cytoskeletal protein regulators, sodium-proton exchanger interaction with the cytoskeleton.

## DATA SCIENCE PROJECTS

**Sentiment Analysis of Pharmaceutical Company Press Releases**

NLP topic modeling and sentiment analysis of press releases from pharmaceutical companies, coupled with analysis of stock price movements. Packages used include: NLTK, Scikit-learn (CountVectorizer, TF-IDF, NMF, LDA, LSA), Tiingo, NumPy, Pandas, PandasDataReader, Matplotlib, Seaborn.

**Topical Exploration of Hunger Games Fan Fiction**

NLP topic modeling of Hunger Games fan fiction literature, to highlight secondary Hunger Games characters that fan fiction writers love to write stories about. Packages used include: BeautifulSoup, NLTK, Scikit-learn (CountVectorizer, TF-IDF, NMF, LDA, LSA), NumPy, Pandas, Matplotlib, Seaborn.

**Encouraging Vaccination Compliance: A Model to Target Non-Vaccinators**

Tested several models (Linear Regression, Naive Bayes-Bernoulli, Decision Tree, and Random Forest) to predict who is likely to decline seasonal flu vaccination, based on demographic and behavioral data. Of the models tested, Logistic Regression model with adjusted threshold predicted the most true negatives on which to focus a public health campaign to encourage vaccination. Packages used include: Scikit-learn, Pandas, Matplotlib, Seaborn.

**A Model to Set Rents in San Francisco**

Linear Regression modeling of rents in the city of San Francisco, trained on data extracted from 'apartments for rent' postings scraped from Craigslist. Packages used include: BeautifulSoup, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn.

**NYC MTA Project: Strategy to Identify MTA Stations to Target for Marketing Campaign**

Group project at Metis data science bootcamp to identify and prioritize MTA stations and days of the week that would be advantageous to target for a marketing campaign. Packages used include: Pandas, Matplotlib, Seaborn.

## SUMMARY

Data scientist with domain knowledge in immunology, cell biology, oncology drug discovery, drug target identification and strategy, and biomarker assay development for inflammation and oncology drug discovery programs, and clinical trials. Experience working in teams and managing direct reports.

## SKILLS

LANGUAGES AND TOOLS	MACHINE LEARNING	VISUALIZATION	WRITING, ETC.
Python	Regression Modeling	Tableau	Scientific writing and editing
Pandas	Supervised Learning	Seaborn	Copy Editing
NumPy	Unsupervised Learning	Matplotlib	
SQL			
Scikit-learn	Neural Networks		
Git	Predictive Modeling		
BeautifulSoup	Hypothesis Testing		
NLTK			

## EDUCATION

**Metis**

Live Online Beginner Python and Math for Data Science

**University of Pennsylvania School of Medicine**

Ph. D. Immunology

Research work in B cell development and antigen receptor signal transduction. Dissertation title: Studies of protein tyrosine kinase involvement in B lymphocyte antigen receptor-initiated signaling.

**Harvard College**

A. B. Biochemical Sciences

Senior Thesis research in cell biology: contributed to the gene sequence of Drosophila alpha-spectrin cytoskeletal protein.

## AWARDS

**Exelixis, Inc** · EXELence Award

Recognized for work in clinical pharmacodynamic assay development and implementation.

**NIH/NIDCR** · Training Fellowship

Fellowship for work in cell biology research at the University of California San Francisco.

**Dermatology Foundation** · Dermatology Foundation Research Fellowship (declined)

Fellowship awarded to continue work in dermatological cell biology research at UC Davis. I declined, as I was moving to UCSF later that year, and was not permitted to take the fellowship award with me to the new research laboratory.

**Harvard College** ·

Elizabeth Cary Agassiz Certificate of Merit

Academic honors