

MICHELLE GILL, PH.D.

Data scientist, biophysicist

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📄 [curriculum vitae](#) and [publications](#)

🌐 [mlgill](#)

🌐 [themodernscientist](#)

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🐦 [modernscientist](#)

EDUCATION

Ph.D. Molecular Biophysics & Biochemistry

2006, Yale University, *New Haven, CT*

B.S. Biochemistry, Summa Cum Laude

2001, University of Kansas, *Lawrence, KS*

SKILLS

Programming: Python, Matlab, C, R, Shell

Big data: PySpark

Machine learning: Supervised algorithms, Clustering, Natural language processing, Principal component analysis, Signal processing, Computer vision, Neural networks, Deep learning, Compressed sensing

Statistics: Regression (linear, logistic, non-linear), Monte Carlo simulations

Databases: PostgreSQL, MongoDB, GraphQL

Other: Unix, Git, AWS, Docker, Kubernetes, Flask, LaTeX

AWARDS

- [Ruth L. Kirschstein National Research Service Postdoctoral Fellowship](#)
- [NSF Graduate Research Fellowship](#)
- [Barry M. Goldwater Scholar](#)
- Kansas Board of Regents full-tuition merit scholarship

EXPERIENCE

Senior Data Scientist

2018 – Present

BenevolentAI

- Used matrix factorization to understand the importance of drug mechanisms in disease-target predictions
- Utilized deep learning (3D CNNs) and chemoinformatics to predict ligand pose and affinity for a given target
- Toolkit: Python, Docker, Kubernetes, PyTorch, RDKit

Senior Deep Learning Consultant

2017 – 2018

NVIDIA

- Designed and implemented proof-of-concept experiments and DL pipeline for clients in pharmaceutical, materials science, and consumer products industries
- Automated setup and maintenance of AWS infrastructure for client work

Senior Data Scientist

2016 – 2017

Metis

- Conducted corporate trainings and co-instructed 12-week bootcamps focused on Python and Spark
- Developed 12-week machine learning course for F100 company and Spark machine learning and NLP curricula

Research Scientist

2014 – 2016

National Cancer Institute

- Developed NESTA-NMR, which uses compressed sensing to enable up to 10X faster acquisition of large (~10 GB) experimental data sets
- Created website and [documentation](#) for NESTA-NMR

Postdoctoral Research Fellow

2008 – 2014

Columbia University Medical Center

- Used Monte Carlo simulations to model effect of physical changes on enzyme activity
- Studied anti-oncogenic associated mechanisms of substrate binding to AlkB, a DNA repair enzyme

Consultant

2006 – 2007

The Boston Consulting Group

- Developed Excel-based statistical tools and Access database for organizational streamlining of pharmaceutical client
- Part of team that developed municipal bond investment strategy for financial services client
- Member of team awarded 2007 Global Strategy Olympics Prize for pharmaceutical client work

PRESENTATIONS

- "[Accelerating the journey from data to medicine](#)", *NeurIPS Expo*, 2018, Montreal, Canada
- "[Artificial intelligence as a catalyst for scientific discovery](#)", *JupyterCon*, Invited Keynote, 2018, New York, NY
- "[From structural biology to AI: a holistic approach to studying molecular machines](#)", *Brookhaven National Laboratory*, Invited Presentation, 2018, Upton, NY