MICHELLE GILL, PH.D.

Data scientist, biophysicist

New York, NY

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curriculum vitae and publications
mlgill
themodernscientist.com
michellelynngill
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, Bayesian methods

Databases: PostgreSQL, MongoDB, GraphQL, Neo4J

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 and graph convolutional neural networks (GCNNs) to understand drug mechanisms
- Utilized deep learning (3D CNNs) and chemoinformatics to predict ligand pose and affinity in target
- Toolkit: TensorFlow, PyTorch, RDKit, Docker, Kubernetes

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