Michael F. Tynes

Computer Science Graduate Student

441 East Fordham Road
JMH 620
Bronx, NY 10458
☎ *+1 (203) 536 4657*
✉ *mtynes@fordham.edu*

Education

2018–May 2020 (Anticipated)	**Fordham University**, M.S. Data Analytics, Department of Computer and Information Science, GPA: 4.0, M.S. Thesis in Machine Learning Accelerated Materials Discovery
2013–2017	**Fordham University**, B.S. Psychology, Honors Thesis in Biological Psychology (in collaboration with the Department of Chemistry)

Relevant Experience

May 2019–Present — **Graduate Research Assistant**, Fordham Chemistry, PI: Joshua Schrier

Software engineer for ESCALATE (laboratory automation software)

- Interfaced existing python codebase with a Mathematica-based chemical space sampling module, greatly improving performance
- Generalized user interface accommodate MIT photovoltaics researchers
- Currently designing next generation of ESCALATE-derived software

Machine learning prediction for perovskite crystallization

- Optimized machine learning models to bypass the need for data pre-processing by successfully learning from raw, unprocessed data
- Implemented tensor-factorization-based reaction recommendation algorithms.

Spring 2018-2019 — **Research Assistant**, Fordham Chemistry, PI: Paul Smith

Machine learning in protein crystallography

- Helped develop a classifier for solvent molecules in protein crystal structures
- Visualized data to explain model design and performance
- Contributed heavily to manuscript preparation

Fall 2016–Fall 2018 — **Research Coordinator**, Fordham Psychology and Fordham Chemistry

Human subjects data collection and management

- Spearheaded an interdepartmental collaboration that is still active as of 2020
- Built a high-throughput pipeline for steroidal hormone quantification
- Used laboratory robotics and automatic data aggregation tools
- Coordinated use of pipeline by three psychology labs for five studies

2014-2016 — **Research Assistant**, Fordham Chemistry, PI: Paul Smith

Laboratory work for protein crystallography

- Expressed and purified CRISPR-Cas proteins for structure determination
- Conducted crystal growth screening trials

Publications

Journal Articles

Jones, L., **Tynes, M.**, and Smith, P. "Prediction of models for ordered solvent in macromolecular structures by a classifier based upon resolution-independent projections of local feature data." *Acta Crystallographica Section D: Structural Biology 75*, 8 (2019) 696-717.

Conference presentations

Tynes, M. and Schrier, J. "Tensor factorization for automated materials discovery based on data from failed experiments." Poster presented at *AI and Tensor Factorizations for Physical, Chemical, and Biological Systems.* (A Los Alamos National Laboratory Workshop) (2019).

Tynes, M., Hoyt, L., and Smith, P. Testing the convergence of biological indices of chronic stress: hair and diurnal cortisol." Presentation delivered at *The National Council of Undergraduate Research* (2017)

Tynes, M. Akhter, F., Sullivan, M., Yip, T., Smith, P. "Hair Cortisol Analysis as a Measure of Discrimination-Associated Chronic Stress." Poster presented at *The Biennial meeting of the American Psychological Association, Division 4* (2016).

Conference papers

Zheng, W., **Tynes, M.**, Gorelick, H., Mao, Y., Cheng, L., and Hou, Y. "Flow-Con: Elastic Flow Configuration for Containerized Deep Learning Applications." *Proceedings of the 48th International Conference on Parallel Processing* (2019).

Awards and Honors

2018-2019	Fordham Centennial Scholarship
2017	James C Higgins Memorial Award in Psychology
Fall 2016	Fordham Undergraduate Research Grant
Summer 2016	Fordham Undergraduate Research Grant

Relevant Coursework

Computational Chemistry, Software Engineering, Big Data Programming, Deep Learning, Reinforcement Learning, Optimization Methods

About me

I am a computer science graduate student with over six years of experience in research and over three years of experience with programming and software development. Most of my recent career has been spent writing code to help scientists collect, manage, analyze, and understand data and its implications.