

Education

- 9/2019 - 2022 (exp.) **PhD Student, Data Science**, *New York University*, New York, NY, Advisor: Andrew Gordon Wilson.
Thesis Title: *Representation Discovery for Probabilistic Machine Learning*
- 2017 - 2019 **MS, Statistics**, *Cornell University*, Ithaca, NY, Advisor: Andrew Gordon Wilson.
Two years of PhD coursework in the field of statistics before transferring with advisor.
- 2016 - 2017 **MS, Statistics**, *Case Western Reserve University*, Cleveland, OH, Advisor: Wojbor Woyczynski.
- 2013 - 2017 **BS, Systems Biology**, *Case Western Reserve University*, Cleveland, OH.
- 1 - 6/2016 **Visiting Student**, *St. Catherine's College, University of Oxford*, Oxford, UK.

Awards and Fellowships

- 2019 **NYU Data Science PhD Fellowship**.
- 2019 **Best Paper ICML Time Series Workshop**.
- 2017 **NSF Graduate Research Fellowship (GRFP)**.

Work Experience

- 5/20–12/20 **Research Scientist Intern**, *Facebook*, Menlo Park, CA, remote.
- 6/21 – 9/21 Developed high dimensional and deep learning based Bayesian optimization techniques for expensive physical simulations as part of Core Data Science team.
- 6/19 – 9/19 **Applied Scientist Intern**, *Amazon*, Cambridge, UK.
Developed probabilistic fast adaptation methods to re-use neural networks on supply chain optimization team.
- 6/17 – 8/17 **Statistics & Data Analytics Intern**, *Lubrizol*, Cleveland, OH.
Performed exploratory data analysis and modelling to understand variability within chemical experiments.
- 7/16 – 8/16 **Data Science Intern**, *Vertical Knowledge*, Chagrin Falls, OH.
Produced data analysis and visualization to produce actionable business intelligence insights.
- 6/15 – 8/15 **Research Intern**, *Research on Industrial Projects for Students, IPAM (UCLA)*, Los Angeles, CA.
Implemented a multi-level model of brain regions for biologically based pattern recognition.

Selected Publications

- [1] **Maddox, W. J.**, Balandat, M., Wilson, A. G., and Bakshy, E. **2021**, “Bayesian Optimization with High-Dimensional Outputs,” in *Advances in Neural Information Processing Systems*. Available: <http://arxiv.org/abs/2106.12997>.
- [2] Stanton, S., **Maddox, W. J.**, Delbridge, I., and Wilson, A. G. **2021**, “Kernel Interpolation for Scalable Online Gaussian Processes,” in *Artificial Intelligence and Statistics (AISTATS)*. Available: <http://arxiv.org/abs/2103.01454>.
- [3] Izmailov, P., **Maddox, W. J.**, Kirichenko, P., Garipov, T., Vetrov, D., and Wilson, A. G. **2019**, “Subspace Inference for Bayesian Deep Learning,” in *Uncertainty in Artificial Intelligence (UAI)*, Contributed Talk at 2019 ICML Uncertainty in Deep Learning Workshop. Available: <http://arxiv.org/abs/1907.07504>.
- [4] **Maddox, W. J.**, Garipov, T., Izmailov, P., Vetrov, D., and Wilson, A. G. **2019**, “A Simple Baseline for Bayesian Uncertainty in Deep Learning,” in *Advances in Neural Information Processing Systems (NeurIPS)*, Contributed Talk at 2018 UAI Uncertainty in Deep Learning Workshop. Available: <https://arxiv.org/abs/1902.02476>.

Programming

Proficient **Python, R, numpy, PyTorch, Git, L^AT_EX**.

Open-Source Software

Contributions **GPyTorch** (<https://github.com/cornellius-gp/gpytorch>), **BoTorch** (<https://github.com/pytorch/botorch>), **swa-gaussian** (<https://github.com/wjmaddox/swa-gaussian>)

Research Interests

Bayesian deep learning, Gaussian processes, Bayesian optimization, scientific computing.