

# SAMUEL STANTON

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Brooklyn, NY 11217

Accomplished Ph.D. student focused on online decision making, uncertainty quantification, and model interpretability. Driven to push the boundaries of current machine learning capabilities, I study how to design useful and reliable systems for dynamic online environments, specifically in optimal experimental design and automatic system control.

## EDUCATION

**Ph.D. in Data Science**, New York University

Expected 2022

**Master of Science in Operations Research**, Cornell University  
*Stability, Optimism, and Curiosity in Model-Based Reinforcement Learning*

August 2019

**Bachelor of Science in Mathematics**, University of Colorado Denver

May 2017

Thesis: *An Algorithm for Redistributing Disproportionate Numbers of Political Asylum Applicants*. Graduated with highest honors, *summa cum laude*.

## SKILLS

Focus Areas

- **Machine learning, deep learning, data science, optimization, control, algorithms**

Languages and Libraries

- **Python, Matlab; PyTorch, Tensorflow**

## PROFESSIONAL EXPERIENCE

Applied Science Intern

Summer 2020

### **Amazon Web Services**

Tasked with investigating resource-efficient algorithms for neural architecture search as part of a long-term research program to improve the capabilities and accessibility of the Amazon AutoML product Sagemaker. Implemented prototype in Python and drafted a tech report and tutorial on the topic.

Machine Learning Research Intern

Summer 2019

### **Secondmind (formerly Prowler.io)**

Tasked with investigating the feasibility of developing reinforcement learning agents for finance and logistics. Independently defined an agenda to combine recent deep reinforcement learning algorithms with probabilistic transition models. Implemented prototype in Python and presented initial results.

Data Science Intern

Summer 2017

### **United States National Security Agency**

Tasked with exploring data regarding analyst work-flow to improve assessment and training procedures for internal operations. Wrote internal API wrappers and scripts to aggregate, clean, and visualize tool usage data. Presented initial findings, delivered an analyst assessment dashboard for managers. Held a Top Secret security clearance.

## PREPRINTS & PUBLICATIONS

- [1] Amos, B., Stanton, S., Yarats, D., & Wilson, A. G. (2020). On the model-based stochastic value gradient for continuous reinforcement learning. *arXiv preprint arXiv:2008.12775*.
- [2] Finzi, M., Stanton, S., Izmailov, P., & Wilson, A. G. (2020). Generalizing Convolutional Networks for Equivariance to Lie Groups on Arbitrary Continuous Data. In *Proceedings of the International Conference on Machine Vision and Machine Learning (ICML)*.
- [3] Stanton, S., Wang, K. A., & Wilson, A. G. Model-based Policy Gradients with Entropy Exploration through Sampling (2019). *Generative Modeling & Model-Based Reasoning for Robotics & AI Workshop (ICML)*.
- [4] Stanton, S. (2017). Beyond the Dublin Regulation: Distributing Political Asylum Applicants Dynamically. Undergraduate Thesis, University of Colorado Denver.

## OTHER RESEARCH EXPERIENCE

Undergraduate Research Assistant Summer 2016

### **University of California Los Angeles**

Designed and executed experiments in a fluid dynamics lab to investigate the behavior of viscous particle slurries. Wrote image analysis code in Matlab to collect and process experimental data.

Undergraduate Research Assistant 2016

### **University of Colorado Denver**

Research in algorithms with desirable scalability and stability properties for indefinite symmetric matrix decomposition in Matlab. Supervised by Dr. Julien Langou.

## AWARDS

**2018 United States Department of Defense NDSEG Fellowship** April 2018

Awarded in recognition of academic excellence and achievement in STEM. Proposed research exploring Bayesian optimization for automatic machine learning.

**2017 COMAP Mathematical Contest in Modeling, Finalist** April 2017

Awarded for a model of the impact of autonomous vehicles on Seattle traffic congestion.

## REFERENCES

Dr. Andrew Wilson (Advisor), Assistant Professor  
Courant Institute of Mathematical Sciences, New York University  
[andrewgw@cims.nyu.edu](mailto:andrewgw@cims.nyu.edu)

Dr. Mark van der Wilk, Assistant Professor  
Department of Computing, Imperial College London  
[m.vdwilk@imperial.ac.uk](mailto:m.vdwilk@imperial.ac.uk)

Dr. Julien Langou, Professor  
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