Tyler LaBonte

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Education

GEORGIA INSTITUTE OF TECHNOLOGY   2021–Present
Ph.D., Machine Learning

UNIVERSITY OF SOUTHERN CALIFORNIA   2017–2021
B.S., Applied and Computational Mathematics, *magna cum laude*   GPA: 3.73/4.0
Skills: Python, TensorFlow, Keras, PyTorch, Numpy, Scikit-Learn, C++, Linux CLI, Git, Vim, LaTeX

Selected Publications

1. **T. LaBonte**. Finding the Needle in a High-Dimensional Haystack: Oracle Methods for Convex Optimization. Senior Thesis, 2021. USC Discovery Scholar distinction recipient. https://tyler-labonte.com/thesis.pdf.

2. M. C. Krygier, **T. LaBonte**, C. Martinez, C. Norris, K. Sharma, L. N. Collins, P. P. Mukherjee, and S. A. Roberts. Quantifying the Unknown: Impact of Segmentation Uncertainty on Image-Based Simulations. Under submission to Nature Communications, 2020. https://arxiv.org/abs/2012.09913.

Research Experience

MICROSOFT RESEARCH   Redmond, WA
Machine Learning Research Intern   2021

GOOGLE X   Mountain View, CA
Machine Learning Research Intern   2020

– Invented CNN-LSTM for temporal identity preservation in multiple object tracking for computational agriculture.
– Developed self-supervised method to extract novel time-series features from agricultural video imagery.
– Initiated a time-lapse experiment in raspberry breeding, building an object evolution dataset with 20,000 images.
– Presented results to Google executives, who approved an FTE hire to deploy my research to production systems.

SANDIA NATIONAL LABORATORIES   Albuquerque, NM
Machine Learning Research Intern   2019–2020

– Invented novel Bayesian CNN deep learning architecture which scales to billion-voxel 3D segmentation volumes.
– Generated statistically credible geometric uncertainty maps which can be smoothly probed during simulation.
– Enabled error bound calculation for physical properties of graphite electrodes and thermal protection systems.
– Integrated codebase with Sandia supercomputers; now an integral component of $10 million simulation system.

Selected Awards

DoD National Defense Science and Engineering Graduate Fellowship ($170,000)   2021

NSF Graduate Research Fellowship ($138,000, one of 5 undergrads in ML, declined) 2021

USC Discovery Scholar (Research distinction for <100 USC graduates)   2021

USC Trustee Scholar (Full scholarship worth $250,000)   2017

USC Viterbi Fellow (Research funding worth $24,000)   2017