

# Tyler LaBonte

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## Education

GEORGIA INSTITUTE OF TECHNOLOGY	2021–Present
Ph.D., Machine Learning	GPA: 4.0/4.0
<i>Advisors: Jacob Abernethy and Vidya Muthukumar</i>	
UNIVERSITY OF SOUTHERN CALIFORNIA	2017–2021
B.S., Applied and Computational Mathematics, <i>magna cum laude</i>	GPA: 3.73/4.0
<b>Skills:</b> Python, TensorFlow, Keras, PyTorch, Numpy, Scikit-Learn, C++, Linux CLI, Git, Vim, $\text{\LaTeX}$	

## Selected Publications

1. **Tyler LaBonte**, Yale Song, Xin Wang, Vibhav Vineet, and Neel Joshi. Scaling Novel Object Detection with Weakly Supervised Detection Transformers. In *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. Transformers for Vision (T4V) Workshop.
2. Michael C. Krygier, **Tyler LaBonte**, Carianne Martinez, Chance Norris, Krish Sharma, Lincoln N. Collins, Partha P. Mukherjee, and Scott A. Roberts. Quantifying the Unknown: Impact of Segmentation Uncertainty on Image-Based Simulations. *Nature Communications*, 12(5414), 2021.

## Industry Research Experience

MICROSOFT RESEARCH	Redmond, WA
<i>Machine Learning Research Intern</i>	2021–2022
<ul style="list-style-type: none"><li>– Developed Transformer model for weakly supervised object detection with multiple instance learning.</li><li>– Achieved object detection performance within 2% of fully-annotated benchmarks using only class labels.</li><li>– Created Bing-based workflow to automate training dataset creation, accelerating model development by 4<math>\times</math>.</li><li>– Integrated pipeline into production system, enabling rapid delivery of new Windows Action Center capability.</li></ul>	
GOOGLE X	Mountain View, CA
<i>Machine Learning Research Intern</i>	2020
<ul style="list-style-type: none"><li>– Invented CNN-LSTM for temporal identity preservation in multiple object tracking for computational agriculture.</li><li>– Developed self-supervised method to extract novel time-series features from agricultural video imagery.</li><li>– Presented results to Google executives, who approved an FTE hire to deploy my research to production systems.</li></ul>	
SANDIA NATIONAL LABORATORIES	Albuquerque, NM
<i>Machine Learning Research Intern</i>	2019–2020
<ul style="list-style-type: none"><li>– Invented novel Bayesian CNN deep learning architecture which scales to billion-voxel 3D segmentation volumes.</li><li>– Enabled error bound calculation for physical properties of graphite electrodes and thermal protection systems.</li></ul>	

## Selected Awards

DoD National Defense Science and Engineering Graduate Fellowship (\$170,000)	2021
NSF Graduate Research Fellowship (\$138,000—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