

# Tyler LaBonte

Undergraduate Researcher  
University of Southern California  
Department of Computer Science  
Los Angeles, CA

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## Research Interests

### Mathematical Foundations of Machine Learning and Data Science

Theory of Deep Learning and Deep Reinforcement Learning  
Online Learning and Bandit Problems  
Non-convex Optimization and High-Dimensional Statistics  
Explainability, Fairness, Robustness, and Scalability of Machine Learning

## Education

University of Southern California  
*Bachelor of Science, Applied and Computational Mathematics*  
*Minor in Computer Science*

Los Angeles, CA  
2017–2021  
GPA: 3.75/4.0

PhD courses (taken as an undergraduate):

CSCI 670: Advanced Analysis of Algorithms  
CSCI 672: Approximation Algorithms  
CSCI 675: Convex and Combinatorial Optimization

## Research Experience

X, the moonshot factory (formerly Google X)  
*Machine Learning Research Intern*

Mountain View, CA  
2020–

Sandia National Laboratories  
*Machine Learning Research Intern*  
*Advisors: Carianne Martinez and Scott A. Roberts*

Albuquerque, NM  
2019–2020

University of Southern California  
*Machine Learning Undergraduate Researcher*  
*Advisor: Prof. Jason D. Lee*

Los Angeles, CA  
2019

University of Southern California  
*Mechanism Design Undergraduate Researcher*  
*Advisor: Prof. David Kempe*

Los Angeles, CA  
2018

Air Force Research Laboratory  
*Machine Learning Research Intern*  
*Advisor: Capt. Justin Fletcher, USAF*

Kihei, HI  
2018

University of Southern California  
 Machine Learning Undergraduate Researcher  
 Advisor: Prof. Anna Farzindar

Los Angeles, CA  
 2017–2018

## Publications

### PREPRINTS

1. **T. LaBonte**, C. Martinez, and S. A. Roberts. We Know Where We Don't Know: 3D Bayesian CNNs for Credible Geometric Uncertainty. Under submission to ECCV 2020. <https://arxiv.org/abs/1910.10793>.

### ACKNOWLEDGMENTS

1. D. Kempe. Communication, Distortion, and Randomness in Metric Voting. In *Proceedings of AAAI 2020*. <https://arxiv.org/abs/1911.08129>.

## Awards

1 <sup>st</sup> Place Computer Vision Project – TREEHACKS, STANFORD UNIVERSITY	2019
1 <sup>st</sup> Place HealthCare AI Project – TREEHACKS, STANFORD UNIVERSITY	2019
1 <sup>st</sup> Place Data Analytics Project – HACKSC, USC	2019
Admiral Bernard Clarey Memorial Scholarship (\$7,000)	2018
National Top 20 Ethical Hacking Finalist – MAJOR LEAGUE HACKING	2018
USC Trustee Scholarship (\$250,000)	2017
USC Viterbi Fellowship (\$24,000)	2017
Dolphin Scholarship (\$13,600)	2017
Rear Admiral Paul Lacy Memorial Scholarship (\$6,500)	2017
National Merit Scholar (\$3,000)	2017

## Open Source Software

1. BCNN: 3D Bayesian CNNs for credible geometric uncertainty <a href="https://github.com/sandialabs/bcnn">https://github.com/sandialabs/bcnn</a>	2019–2020 ★ 13   ♪ 3
2. Tendies: Decoupling deep learning development and deployment <a href="https://github.com/tmlabonte/tendies">https://github.com/tmlabonte/tendies</a>	2018 ★ 30   ♪ 8

## Teaching

1. Curriculum Lead   USC Center for Artificial Intelligence in Society Introduction to Machine Learning	2019
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2. Undergraduate Teaching Assistant | University of Southern California  
CSCI 170: Discrete Methods in Computer Science 2018

## **Invited Talks**

1. USC Theory Group – LOS ANGELES, CA 2019  
3D Bayesian CNNs for Credible Geometric Uncertainty
2. USC Center for Artificial Intelligence in Society – LOS ANGELES, CA 2019  
3D Bayesian CNNs for Credible Geometric Uncertainty