Tyler LaBonte

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Research Interests

Mathematical Foundations of Machine Learning and Data Science
Nonconvex Optimization and High-Dimensional Statistics
Theory of Deep Learning and Deep Reinforcement Learning
Explainability, Interpretability, Robustness, and Scalability of Machine Learning
Randomized and Approximation Algorithms

Education

University of Southern California — Los Angeles, CA
Bachelor of Science, Applied and Computational Mathematics — 2017–2021
Minor in Computer Science — GPA: 3.75

PhD courses (taken as an undergraduate):

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

Employment

X, the moonshot factory (formerly Google X) — Mountain View, CA
Machine Learning Research Intern — 2020–

Sandia National Laboratories — Albuquerque, NM
Machine Learning Research Intern — 2019–2020

Air Force Research Laboratory — Kihei, HI
Machine Learning Research Intern — 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

1st Place Computer Vision Project – TreeHacks, Stanford University	2019
1st Place HealthCare AI Project – TreeHacks, Stanford University	2019
1st 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 — 2019–2020
   https://github.com/sandialabs/bcnn — ★ 10 ⑂ 2
2. Tendies: Decoupling deep learning development and deployment — 2018
   https://github.com/tmlabonte/tendies — ★ 25 ⑂ 8

Teaching

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

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