Aaron Lou

aaronlou@stanford.edu | aaronlou.com

Education

Stanford University Sep 2021 -
PhD in Computer Science
Funding: NSF Graduate Research Fellowship

Cornell University Aug 2017 - May 2021
B.A. in Mathematics – *Summa Cum Laude*
B.A. in Computer Science – *Magna Cum Laude*
Completed 15 graduate level courses including core graduate math curriculum.

Conference Publications

Isay Katsman*, **Aaron Lou***, Derek Lim*, Qingxuan Jiang*, Ser-Nam Lim, & Christopher De Sa. "Equivariant Manifold Flows". Will appear in *NeurIPS 2021: Thirty-fifth Conference on Neural Information Processing Systems*, Dec 2021.

Tolga Birdal, **Aaron Lou**, Leonidas Guibas, Umut Simselski. "Intrinsic Dimension, Persistent Homology and Generalization in Neural Networks". Will appear in *NeurIPS 2021: Thirty-fifth Conference on Neural Information Processing Systems*, Dec 2021.

Aaron Lou*, Derek Lim*, Isay Katsman*, Leo Huang*, Qingxuan Jiang, Ser-Nam Lim, & Christopher De Sa. "Neural Manifold Ordinary Differential Equations". In *NeurIPS 2020: Thirty-fourth Conference on Neural Information Processing Systems*, December 2020.

Aaron Lou*, Isay Katsman*, Qingxuan Jiang*, Serge Belongie, Ser-Nam Lim, & Christopher De Sa. "Differentiating through the Fréchet Mean". In *ICML 2020: the Thirty-seventh International Conference on Machine Learning*, July 2020.

Workshop Publications

Aaron Lou, Maximilian Nickel, Brandon Amos. "Deep Riemannian Manifold Learning". In *DiffGeo4DL 2020: NeurIPS workshop on Differential Geometry meets Machine Learning,* Dec 2020.

Horace He, **Aaron Lou***, Qingxuan Jiang*, Isay Katsman*, Serge Belongie, & Ser-Nam Lim. "Adversarial Example Decomposition". In *SPML 2019: ICML Workshop on Security and Privacy in Machine Learning,* June 2019.

Research Experience

Stanford University Sep 2021 -
Doctoral research | Palo Alto, CA
- Fall rotation w/ Prof. Leonidas Guibas
- Winter rotation w/ Prof. Christopher Ré
- Spring rotation w/ Prof. Stefano Ermon

Facebook AI Jun 2022 - Sep 2022
Incoming Research Intern | New York, NY

Will be hosted by Dr. Brandon Amos.

Facebook AI May 2020 - Aug 2020
Research Intern | New York, NY
- Manifold learning w/ Dr. Brandon Amos & Dr. Maximilian Nickel
- Topology and data augmentation w/ Dr. Ser-Nam Lim.

Cornell University Artificial Intelligence Aug 2018 - May 2021
Undergraduate Researcher | Ithaca, NY
- Geometric machine learning w/ Prof. Christopher De Sa.
- Adversarial examples w/ Prof. Serge Belongie & Dr. Ser-Nam Lim.

Industry Experience

Facebook AI Jun 2021 - Sep 2021
Software Engineering Intern | Menlo Park, CA
- Detectron2 w/ Vaibhav Aggarwal

Google May 2019 - Aug 2019
Software Engineering Intern | Mountain View, CA
- Google Maps incognito mode w/ Satwika Sarkar

Invited Talks

Deep Riemannian Manifolds Oct 2021
FAIR Embodied AI Group

Normalizing Flows on Manifolds Sep 2021
Guest lecture at Bosphorus University

Normalizing Flows on Manifolds Nov 2020
Guest lecture at Stanford CS 468

Neural Manifold Ordinary Differential Equations Jul 2020
Spotlight talk at ICML INNF+ Workshop

Awards

Harry S. Kieval Prize in Mathematics, Cornell University May 2021
NSF Graduate Research Fellowship Mar 2021
CRA 2021 Outstanding Undergraduate Research Award H.M. Dec 2020
ICPC North American Championship Bronze Medal Feb 2020
ICPC Greater New York Regional Champion Oct 2019
Putnam Exam Top 250 Dec 2018
Cornell Freshman Math Exam Champion May 2018

Teaching

CS 5199 (Competitive Programming) TA Fa, Sp 2019
CS 2802 (Honors Discrete Structures) TA Sp 2019

Mentorship

Cornell University Artificial Intelligence

Mentor | Remote — May 2021 -

Co-president | Ithaca, NY — May 2020 - May 2021

CUAI is a a Cornell undergraduate machine learning research club. Since its founding in 2018, the club has published 7 undergraduate-led papers at top-tier ML and CV conferences.

Service

Conference Reviewer: ICLR 2022, NeurIPS 2021

Workshop Reviewer: INNF+ 2021, DiffGeo4DL 2020

Secondary Reviewer: ICML 2021, NeurIPS 2020