

Aaron Lou

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- Education** **Stanford University** Sep 2021 -
PhD in Computer Science — Advised by Prof. Stefano Ermon
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”. In *NeurIPS 2021: Thirty-fifth Conference on Neural Information Processing Systems*, Dec 2021.
- Tolga Birdal, **Aaron Lou**, Leonidas Guibas, Umut Simsekli. “Intrinsic Dimension, Persistent Homology and Generalization in Neural Networks”. 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**, Yang Song, Jiaming Song, Stefano Ermon. “Neural Geometric Embedding Flows”. In *TAG-ML 2022: ICML workshop on Topology, Algebra, and Geometry in Machine Learning*, July 2022.
- Isay Katsman*, Eric Chen*, Sidhant Holalkere*, Anna Asch*, **Aaron Lou**, Ser-Nam Lim, Christopher De Sa. “Riemannian Residual Neural Networks”. In *TAG-ML 2022: ICML workshop on Topology, Algebra, and Geometry in Machine Learning*, July 2022.
- 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.

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|----------------------------|---|---------------------|
| Research Experience | Stanford University Doctoral research Palo Alto, CA | Sep 2021 - |
| | Facebook AI Research Intern New York, NY | Jun 2022 - Sep 2022 |
| | Hosted by Dr. Brandon Amos | |
| | Facebook AI Research Intern New York, NY | May 2020 - Aug 2020 |
| | <ul style="list-style-type: none"> • Manifold learning w/ Dr. Brandon Amos & Dr. Maximilian Nickel • Topology and data augmentation w/ Dr. Ser-Nam Lim. | |
| | Cornell University Artificial Intelligence Undergraduate Researcher Ithaca, NY | Aug 2018 - May 2021 |
| | <ul style="list-style-type: none"> • Geometric machine learning w/ Prof. Christopher De Sa. • Adversarial examples w/ Prof. Serge Belongie & Dr. Ser-Nam Lim. | |
| Industry Experience | Facebook AI Software Engineering Intern Menlo Park, CA | Jun 2021 - Sep 2021 |
| | <ul style="list-style-type: none"> • Detectron2 w/ Vaibhav Aggarwal | |
| | Google Software Engineering Intern Mountain View, CA | May 2019 - Aug 2019 |
| | <ul style="list-style-type: none"> • Google Maps incognito mode w/ Satwika Sarkar | |
| Invited Talks | <i>Normalizing Flows on Manifolds</i> Guest lecture at Bosphorus University | Sep 2021 |
| | <i>Normalizing Flows on Manifolds</i> Guest lecture at Stanford CS 468 | Nov 2020 |
| | <i>Neural Manifold Ordinary Differential Equations</i> Spotlight talk at ICML INNF+ Workshop | Jul 2020 |
| 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

Co-president | Ithaca, NY

May 2021 -

May 2020 - May 2021

Service

Conference Reviewer: Neurips 2021-2022, ICML 2022, ICLR 2022

Journal Reviewer: TMLR