

Atish Agarwala

CONTACT INFORMATION

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EDUCATION

Stanford University, Stanford, CA

PhD Candidate in Physics

September 2013 – Present

Swarthmore College, Swarthmore, PA

Bachelors degree in Physics and Math (Highest honors)

August 2009 – May 2013

HONOURS AND AWARDS

CEHG Fellow, 2018-2019

Stanford Bowes BioX Fellow, 2015-2018

William C. Elmore Prize, Swarthmore Physics Department, 2013

Finalist for 2013 Hertz Foundation Fellowship

RESEARCH EXPERIENCE

Stanford University, Stanford, CA

Graduate student

September 2013 – Present

Studying evolutionary dynamics with Daniel Fisher in Applied Physics. Research consists of a mixture of analytical and computational explorations of stochastic dynamics of evolutionary processes. Projects include studies of epistasis and ecological dynamics. Also work on analyzing data from laboratory evolution experiments in collaboration with Gavin Sherlock in Genetics and Dmitri Petrov in Biology.

Google Brain, Mountain View, CA

Research intern

June 2018 – August 2018

Studied early learning in neural networks using mean field theory. Developed a formalism to compute optimal learning rates after network initialization and demonstrated validity by training hundreds of thousands of networks.

Okinawa Institute of Science and Technology, Okinawa, Japan

Summer Researcher

May 2012 – August 2013

Computationally investigated metamaterial device with potential applications in all-optical switching.

Swarthmore College, Swarthmore, PA

Summer Researcher

May 2011 – August 2011

Investigated limits of Lie groups from relativistic symmetry groups to non-relativistic groups.

PROGRAMMING

Python, Tensorflow, Matlab, C++. Familiarity with UNIX/Linux. Experience with Google compute infrastructure. Took CS 229: Machine Learning while at Stanford.

SELECTED PUBLICATIONS

M. Pearce, **A. Agarwala**, DS Fisher, “Spatial structure dynamically stabilizes diversity in Lotka-Volterra models”, in preparation

A. Agarwala, DS Fisher, “Adaptive walks on high-dimensional fitness landscapes and seascapes with distance-dependent statistics”, bioRxiv doi: <https://doi.org/10.1101/435669>

Y. Li, S. Venkataram, **A. Agarwala**, et. al., “Hidden complexity of adaptation under simple serial-dilution conditions in yeast”, *Current Biology*, Volume 28, Issue 4, 19 February 2018, Pages 515-525.e6

S. Venkataram, B. Dunn, Y. Li, **A. Agarwala**, et. al., “Development of a Comprehensive Genotype-to-Fitness Map of Adaptation-Driving Mutations in Yeast”, *Cell*, Volume 166, Issue 6, 1585 - 1596.e22

REFERENCES

Daniel S. Fisher
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David Starr Jordan Professor of Applied Physics
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