

YUTARO SHIMIZU

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RESEARCH EXPERIENCE

Santa Fe Institute | Santa Fe, New Mexico

Undergraduate Complexity Researcher, Foundations of Intelligence, June 2022 – August 2022

- Improved Genetic Algorithms' MNIST classification accuracy by 15% by innovating new evolutionary search mechanism (host-parasite coevolution, patch fragmentation and $\alpha\beta\gamma$ diversities); Supervisor: Melanie Mitchell
- Quantified evolution of algorithm solutions with Information Theory (relative entropy and cosine similarity)
- Presented research findings to 50 top complexity researchers and received feedback on visual communication

Shinshu University | Nagano, Japan

Research Assistant, Forest Ecology Department, July 2021 – January 2022

- Developed no-coding geospatial web app for data synthesis and analytics using 10+ public satellite API
- Led publication by modeling statistical mechanics of tree growth with field data from 5+ sub-Alpine forests

Newday Impact Investing | San Francisco, California

Web Analytics Intern, September 2019 – April 2020

- Designed novel customer credit scoring algorithm using large KPI database of 2000+ portfolio companies
 - Renovated 10+ UI/UX wireframes of credit score application to nudge sustainable consumption of customers
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EDUCATION

Minerva University | San Francisco, California

Bachelor of Science, College of Natural Sciences, May 2023

- Cumulative GPA: 3.39/4.00; Machine Learning and Environmental Science; Acceptance rate: 1.2%
- Courses: Database Structure and Algorithms, Software Engineering, Statistical Inference & Pure Mathematics
- Modeled nonlinear dynamics of population decay for mathematical analysis of real-world chaotic systems
- Simulated 100 year impact of San Francisco's Sea Level Rise on native endangered bird's population
- Replicated 30-year statistical inference about forest loss during Congolese War; Supervisor: Alexis Diamond
- Lived and studied in 7 cities over 4 years (San Francisco, Seoul, Tokyo, London, Berlin, Buenos Aires, Taipei)

UWC ISAK Japan | Nagano, Japan

International Baccalaureate Diploma, 40/45 IB points, June 2019

- Identified 10 fatal hairpin curves by fitting osculating circles to geospatial data, Higher Level Physics & Math
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PUBLICATION

- **Shimizu, Y.**, Tondokoro, Y., and Ida, H. Allometry of young *Fagus crenata*: prostrate stem reinforces belowground development. *Journal of Forest Research*, In review.
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SKILLS AND INTERESTS

- **Technical Skills:** Python, R, MATLAB & Google Earth Engine (intermediate), C & SQL (elementary)
- **Work Interests:** real-time ambient IoT analytics, corporate data visualizations, cloud computing
- **Personal Interests:** scientific illustration, drawing, filmmaking, reading, cooking, surfing, hiking, dance
- **Languages:** English and Japanese (native); Korean, Mandarin & Russian (conversational)