

Anna Du

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<https://www.annadu.org>

<http://deepplastics.org>

<https://youtube.com/@microplasticsgirl>

Education

High School	Phillips Academy	2020 - 2024
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Work Experience

February 2023 - Present	MIT PRIMES at the Mirny Lab
July 2022 - August 2022 Sanofi U.S.	Intern (Part of the award for 2021 MA Science and Engineering Fair Grand Prize) <ul style="list-style-type: none">● Studied chemical analysis assays in the labs under the supervision of lead scientist/lab director at molecular oncology division● Developed an open-source software program to process lab-images for analyzing protein assays● Met with corporation management; Shadowed different departments under headquarter liaison
July 2020 - March 2021	Ten episode TV Series OPERATION AWESOME

Public Service

- Appointed by the Selectmen and Town Manager as a board member on the Andover Green Advisory Board to provide Town Board and Departments advice on sustainability plans, practical environmental solutions, promote increased use of renewable energy and resources, reduce solid waste, conserve energy and resources, and prevent pollution. Helped organize citizen science events to encourage science literacy, designed posters, materials, surveys, and collateral to reach constituents and visitors.

Awards

2023

- Davidson Fellows Scholarship
- Brace Fellowship
- RSI Alternate
- Atlas Finalist
- AP Scholar with Honor

2022

- Junior Science and Humanities Symposium (JSHS) National Oral Finalist
- JSHS First Place in New England
- Second Place at the Massachusetts State Science and Engineering Fair
- National Geographic: That's Geography Award
- Davidson Fellows Scholarship: Honorable Mention
- AP Scholar Award

2021

- Sanofi Genzyme Grand Award at the Massachusetts State Science and Engineering Fair
- First Place in the Massachusetts Region IV Science Fair
- JSHS National Oral Finalist
- JSHS Second Place in the New England
- ISEF Third Place Grand Prize
- Photo Award at the International Photo Exhibition River and Ocean, Connecting Water to Life, Thailand National Science Museum

2020

- February Children's Book Council's Hot Off the Press for Microplastics and Me

2019

- Cabot Grand Prize at the Massachusetts Science and Engineering Fair
- First Place in the Region IV Massachusetts Science and Engineering Fair
- MIT Lincoln Lab Minor Planet Named Annadu
- Gloria Barron Prize for Young Heroes
- Shining World Invention Award
- Broadcom MASTERS national Top 30 Finalists

2018

- 3M Discovery Channel America's Top Ten Young Scientists
- Broadcom MASTERS national Top 30 Finalists
- First Place at the Region IV Massachusetts Science and Engineering Fair
- Third Place at the Massachusetts Science and Engineering Fair

Inventions / Intellectual Properties / Research

- Utilizing Machine Learning to Identify Time Asymmetry of DNA Loop Extrusion
- Developing an AI-Enhanced Protocol for Simulating Abiogenesis: Novel Nano-Structured Carbon Materials as a Templating Surface for Prebiotic Nucleic Acid Oligomer Formation
- Creating a novel DLC-based thermo-photo-betavoltaic remote, extensible energy conversion and storage device, patent pending
- Designing a 3D trajectory modeling system to predict ocean floor microplastic aggregation using a voxel-based neural network approach
- Investigating the aggregation of marine microplastics utilizing a low-cost, machine learning & infrared spectroscopy equipped remotely operating vehicle

- Developing a smart, infrared based remotely operating vehicle to identify microplastics in marine environments

Publications

- Molecular simulations of Abiogenetic RNA oligomer formation via carbonaceous templates with heterogenous crystalline structure and varied nanostructural morphologies (2023)
 - Submitted to biorxiv.org, under Biochemistry
- Paper under peer review (2022)
 - Created an open-source, automated program for the rapid and accurate analysis of protein screening assays
- I Am Anna Du, the Microplastics Girl (2022)
- Microplastics and Me (2020)
 - Foreign rights licensing to Korea, China, India, Taiwan, and Germany

Invited Lectures

- Keynote Speaker at the 2019 Worldskills Conference, Kazan, Russia
- Keynote Speaker at the 2019 Czech Innovation Week, Prague, Czech Republic
- Keynote Speaker at the 2019 Raise Her Voice (formerly #LeadLikeAGirl) Conference, NJ, USA
- Invited to be a Keynote Speaker at TEDx India in Mumbai (canceled due to COVID)
- Selected to be featured on the WE Day 2020 in Microsoft Theater Los Angeles (canceled due to COVID)

Media

- ABC Good Morning America: Teen raises awareness about microplastics in oceans

- Ten Episode TV Series Operation Awesome on BYUtv
- The Genius Generation Podcast
- Mission Magazine Youth Series
- WGBH Design Squad: Kid Engineer: Underwater ROV
- Designboom: teen inventor builds a robot that can detect microplastics in our oceans
- Upworthy Voices: Anna Du is Saving Our Oceans!
- So Fly for Sci: Celebrating Earth Month on Disney Channel
- Two videos published by the Museum of Science
- Scitech Museum (Australia): Earth Matters: Rethink the Future
- We Are Makers: Real Women and Girls Shaping Our World by Amy Richards
- Cheddar News: A 7th Grade Scientist Is on Mission to Clean Our Oceans
- 60 Second Docs: Kid Microplastic Hunter
- Contributed articles about microplastics for textbooks in Germany, Sweden, Netherlands, Brazil, and in the United States
- Diversity in Action Magazine's 20 Under 20
- Guest on the Kelly Clarkson Show
- Tumblehome Interviews: Anna Du - What is the Big Problem with Microplastics?
- Stanford MAHB Dialogue: Saving Our Oceans is My Planetary Duty
- Amy Poehler's Smart Girls: Meet 13-year-old Anna Du — 2018 Discovery Education 3M Young Scientist Challenge Finalist
- Young Heroes' Summit 2020
- Huffpost: A Huge Mystery About Ocean Plastics Remains Unsolved
- Boston Children's Museum Mini Maker Faire Workshop
- Smithsonian Magazine: This 12-Year-Old Girl Built a Robot That Can Find Microplastics In the Ocean

- Fox News: 12-year-old Andover girl's invention getting national recognition
- Water World: The Drop: Young Hero Spreads Awareness of Microplastic Pollution
- Rangerick: Anna Du Trash Detector
- Wildplanet: Anna Du Removing Microplastics from Our Ocean

Community Outreach

- Outreach and lectures to schools in Las Vegas, Philadelphia, New Jersey, Massachusetts, Vietnam, China, Belgium, Russia, and the Czech Republic
- Produces educational videos
- Lectures for Girl Scouts about microplastics
- Science fair outreach at Andover School of Montessori

Skills

Programming skills include proficiency in TensorFlow, Python, Keras, C++, and Java

Software skills include WordPress, HTML, SketchUp, MSC Nastran/Patran, AutoFEM/AutoCAD, and NetLogo

Proficient in Word, Excel, Photoshop, and Illustrator.

Languages

- Native English (primary)
- Fluent Mandarin
- Intermediate Japanese
- Intermediate Spanish