Ena Chia

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EDUCATION

New York City College of Technology, City University of New York (CUNY) Brooklyn, NY
BS in Applied Computational Physics; concentration in Astrophysics | Minor in Psychology Aug 2019 - May 2025
Relevant Coursework: Machine Learning for Physics and Astronomy, Computational Methods, Classical Mechanics, Electricity and Magnetism, Thermodynamics, and Statistical Mechanics, Quantum Computing, Quantum Mechanics, Statistics I, Ordinary Differential Equation, Calculus (I, II, III), Computer Programming (Python, Java).

High School of Art and Design New York, NY
Major in Architecture, concentration in sustainability design Aug 2015 - June 2019

FELLOWSHIP

Cientifico Latino, Inc. GSMI 2024 New York, NY
Scholar Aug 2024 - Present
- Selected as 1 of the 100 GSMI 2024 scholars (out of 400+ applicants) to participate in a mentorship program that provides one-on-one mentorship and graduate school application preparation.

Womanium Quantum + AI Program 2024 New York, NY
Womanium Global Quantum Scholar June 2024 - Aug 2024
- Completed immersive training in AI/ML, Quantum Annealing, Quantum Machine Learning, and more, with hands-on lab tours and sessions hosted by industry leaders such as NVIDIA, D-Wave, and Oak Ridge National Lab.
- Contributed to global STEM outreach through projects including training young participants in Quantum topics, setting up a Womanium Quantum Chapter, and creating online media to showcase progress and encourage diversity in STEM.
- Actively participated in industry-driven projects, gaining real-world experience in Quantum technologies.

Simons Foundation, CENTER FOR COMPUTATIONAL ASTROPHYSICS New York, NY
Guest Researcher May 2024 - Present
- Collaborated on projects analyzing large-scale cosmic structures. Improved algorithms for calculating galaxy distances to cosmic filaments and clusters using k-d trees and the DisPerSe software, including Delaunay 3D tessellation techniques.
- Investigated star formation rates and evolution in a simulated Milky Way-type galaxy with data from the N-Body Shop. Processed datasets using the PynBody package to model star formation history and compare simulation results with observational data.

AstroCom NYC New York, NY
Scholar, Student Representative Jan 2024 - Present
- Conducted computational astrophysics research under the mentorship of Dr. Charlotte Welker and Dr. Charlotte Olsen, leveraging Python for data analysis using GAMA and SAMI survey data and algorithm development. Enhanced research skills and knowledge through specialized training, seminars, and collaborative projects.
- Built a professional network with fellow researchers and academics in the field of astrophysics, fostering a collaborative and innovative research environment.
- Engaged in multiple workshops and a class, "Science Thoughts and Practices", gaining hands-on experience in conducting experiments. Participated in thought-provoking discussions to deepen understanding of scientific concepts and enhance analytical skills.
- Serve as a student representative for AstroCom NYC, facilitating communication between students and faculties, contributing to event planning, and fostering collaboration in the astrophysics community.

American Museum of Natural History, ASTROPHYSICS New York, NY
Student Guest Researcher Jan 2023 - Present
- Engaged in research projects focused on astrophysical phenomena and data analysis. Worked closely with professors and researchers to explore: exoplanets, galaxy formation, and cosmic structures.
- Enhanced research skills and knowledge through specialized training, seminars, and collaborative projects. Built a professional network with fellow researchers and academics in the field of astrophysics.
- Presented research findings at seminars and workshops, engaging with the scientific community and contributing to the advancement of astrophysical knowledge.

CUNY New York City College of Technology, EMERGING SCHOLARS PROGRAM Brooklyn, NY
Emerging Scholars Program Research Assistant Oct 2022 – Present

- Investigated the distribution of galaxy clusters in different regions, including those within hot gaseous environments and filaments; aiming to identify any patterns or randomness in the branching of cosmic filaments into clusters.
- Employed SQL's querying capabilities to extract, filter, and sort large datasets from relevant databases, leveraging the power of SQL for efficient data retrieval and analysis.

RESEARCH EXPERIENCE

THE EVOLUTIONS OF GALAXIES AND STARS Jan 2024 - Present

- Conducts in-depth research on galaxy evolution by analyzing feedback mechanisms and baryon cycling processes. Focuses on tracing star formation through scaling relations such as the star formation rate (SFR) and stellar mass (M*), and studying the build-up of stellar mass over time via galaxy star formation histories (SFHs).
- Reconstruct resolved SFR-M correlations at various time steps, tracing the evolution of correlation normalization and zero-point for regions within galaxies. Tracks the stochasticity of individual regions, providing insights into galaxy evolution's timing and environmental drivers.

OVERNIGHT OBSERVATION SPECIALIST, Museum of Natural History Jan 2023 - Present

- Conducted overnight observations using advanced telescopes to identify and study exoplanets. Utilized astronomical equipment and data analysis techniques to monitor celestial bodies and gather critical information on their properties and behaviors.
- Collected data using Grand Mesa Observatory Telescope in Whitewater, Colorado remotely.

PROTECTING GALAXIES USING COSMIC FILAMENTS FORMATIONS Oct 2022 - March 2024

- Runs large cosmological simulations to study the formation and evolution of galaxies within their cosmic environments. It focuses on understanding how the large-scale structure of the Universe, known as the Cosmic Web, evolves and influences galaxy development.
- Investigates whether cosmic filaments protect galaxies from gas stripping in SAMI clusters by examining tidal interactions, inflows, mergers, and outflows from central black holes and supernovae. Analyzes the mechanisms driving these processes to gain insights into the complex interplay between galaxies and their surroundings.

QUBIT x QUBIT: QUANTUM COMPUTING PROJECT Jan 2022

- Attended an intensive quantum computing class by Qubit x Qubit, gaining hands-on experience in using Qiskit and understanding the fundamental concepts of quantum computing and mechanics.
- Completed a project at the end of the class, utilizing Qiskit to reproduce and validate results, demonstrating a strong grasp of quantum computing principles and practical implementation.

SCHOOL OF INTERACTIVE ARTS: GAME DESIGN - Apprenticeship June 2017 – June 2018

- Utilized Unity game engine and programming languages C++ and C# to code and create engaging 2D games. Gained hands-on experience in game mechanics, user interface design, and software development.
- Participated in a team-based project to design and develop a role-playing 3D game. This involved applying advanced coding techniques, coordinating with team members, and managing project timelines. Demonstrated strong teamwork and project management skills while enhancing technical expertise in 3D game development.

PRESENTATIONS & TALKS

APS Conferences for Undergraduates Women and Gender Minorities New York, NY
"Exploring Properties Of Resolved Regions In Galaxies Through Cosmic Time" Jan 2025

American Astronomical Society 245th Meeting ; Chambliss Award Finalist Oxon Hill, MD
"Exploring Properties Of Resolved Regions In Galaxies Through Cosmic Time" Jan 2025

Emerging Scholars Program, CUNY New York City College of Technology Brooklyn, NY
"Exploring Properties Of Resolved Regions In Galaxies Through Cosmic Time" Dec 2024

City Tech 22nd Annual Poster Session Brooklyn, NY
"It's What's Inside That Count: Galaxy Evolution Through Spatially Resolved Galaxy Formation" Nov 2024

CUNY New York City College of Technology: PHYS 1117 New York, NY
Promoted PHYS 1117: Astronomy I course using a gif made Galaxy H277 Aug 2024

AstroCom Summer REU Presentation 2024 New York, NY
"What do properties in galaxy regions tell us about galaxy evolution?" July 2024

Rubin Community Workshop: Undergraduate Network New York, NY
"Galaxy Evolution: Looking At Resolved Regions Of Galaxies" July 2024

Astro On Tap New York City New York, NY
"Queers In Astro!" June 2024

AstroCom Summer REU Presentation 2023 New York, NY
"Studying Properties Of Galaxies Near Cosmic Filaments" Aug 2023

GothamFest, Center for Computational Astrophysics, Flatiron Institute New York, NY
"Do cosmic filaments protect galaxies from gas stripping in SAMI clusters?" Jan 2023

Emerging Scholars Program, CUNY New York City College of Technology Brooklyn, NY
"Can cool cosmic filaments protect galaxies from the hot gas in clusters?" Nov 2022

CERTIFICATIONS

NVIDIA DEEP LEARNING INSTITUTE - Machine Learning June 2023
CUNY RESEARCHERS - CITI Program Oct 2022
QUBIT x QUBIT: QUANTUM COMPUTING SCHOOL Jan 2022
ADOBE PHOTOSHOP CC 2015 May 2017

EXTRACURRICULAR

CUNY Astro NYC: Student Union Brooklyn, NY
Student Union Representative Sep 2024 - Present

- Created Newsletters and flyers for townhall meetings.
- Attended and participated in the sessions, demonstrating a commitment to expanding knowledge and staying abreast of the latest advancements in solar sailing. Engaged in discussions with esteemed professionals, professors, and researchers in the field. Participated in workshops to contribute to the collective understanding of solar propulsion technology.

International Symposium on Space Sailing Brooklyn, NY
Conference Assistant June 2023

- Actively engaged in and played a vital role in setting up and coordinating the conference logistics.
- Attended and participated in the sessions, demonstrating a commitment to expanding knowledge and staying abreast of the latest advancements in solar sailing. Engaged in discussions with esteemed professionals, professors, and researchers in the field. Participated in workshops to contribute to the collective understanding of solar propulsion technology.

City Tech Physics Club Brooklyn, NY
Committee Member Nov 2019 – Present

- Collaborated with committee members to select topics and plan activities for club meetings. Developed teamwork, leadership, and organizational skills in a community of physics enthusiasts.
- Assisted club presidents in organizing events, guest lectures, and organizing workshops.

ADDITIONAL SKILLS

Technical Languages & Software: Python, Visual Studio Code, Unity, LaTeX, Unix Terminal, CAD, C++, C#, Java, C, R, Git.
Python Packages: Qiskit, Numpy, Matplotlib, Pandas, Scipy, Astropy, SkLearn, Scikit, Seaborn, PyTorch, PynBody
Languages: Fluent in English and Chinese (Mandarin and Hokkien). Basic in Malay, Intermediate in French.