Ivy Mica Yixian Huang[1]

ihuang@wesleyan.edu :: https://imyxh.net :: any pronouns

I am broadly interested in resonators, wave transport, and imaging systems. I aim to develop and characterize new instrumentation to understand more about our universe.

> EDUCATION

Wesleyan University, Middletown CT (2020 to 2024, BA in **physics** and **astronomy**; 3.89/4 GPA)

Interlake High School, Bellevue WA (2016 to 2020, IB diploma of 2019-05)

> EXPERIENCE

Student **physics researcher** at Wesleyan (2021-02 to present, Middletown CT)

- Wrote a library in C for Python to allow for high-frequency stereo feedback loops to be adjusted finely in phase shift, linear recursive filtering, and gain, interfacing with the ALSA audio library.
- Conducted research with Prof. Fred Ellis on balancing an asymmetric, lossy gyrator system at 7 kHz using only a Raspberry Pi sound card and custom software.
- Developed a comfortable understanding of using both analytical and computational methods to model non-Hermitian oscillations.

Summer **research fellowship** at Caltech (2021-06 to 2021-08, Pasadena CA)

- Developed 32-channel MHz frequency analog modulation electronics for spacetime-modulated optical metasurface. Work to be published.

Internship at **Strategic Robotic Systems** (2019-09 to 2021-01, Redmond WA)

- Worked in production including soldering, quality control, firmware flashing, and systems prototyping.
- Developed ROV training simulator in Unity using real bathymetry data and realtime sonar simulation.
- Handled fragile components and electronics sensitive to electrostatic discharge.

Interlake **cybersecurity club** (2018-09 to 2020-06, Bellevue WA)

- Presented hands-on lectures and labs regarding web exploitation, reverse engineering, and forensics to club members, and co-taught an 8-week class at the local middle school.
- Competed as a part of a 5-member team that placed 3rd across national high schools in PicoCTF 2018 (largest high school cybersecurity competition in the world) and 3rd again in HSCTF 2018.
- Specialized in reverse-engineering; extensively practiced reading and writing assembly.

Internship at Lightsphere AI (various times during 2016 to 2018, Bellevue WA)

- Worked on image processing algorithms for machine learning in Python and OpenCV.

1 Some may also know me as Ian Huang. You may refer to me by either name.

> COURSES TAKEN + SCHEDULED

courses completed to date:	taking this year:
Quantum Mechanics 1 (A+)	Radio Astronomy
Nonlinear Dynamics and Chaos (A+)	Quantum Mechanics 2
Special Relativity (A+)	Electricity and Magnetism
Waves and Oscillations (A)	Thermal and Statistical Physics
Observational Astronomy (A)	Electronics Lab
Contemporary Physics (CR)	Classical Dynamics
Condensed Matter Seminar (CR)	Galactic Astronomy
Differential Equations (A)	etc.
Vectors and Matrices (A)	
etc.	

> SKILLS

- Very comfortable in **C, Julia, Python**; have worked in x86 Assembly, C++, Bash, Go, Java, etc.
- Using advanced features of **oscilloscopes** and **vector network analyzers**.
- Computational methods and 2D/3D **data visualization** in Julia and SageMath.
- Designing mixed-signal printable circuit boards in KiCad.
- 2D communication design, photography, image editing software (GIMP/Darktable or Photoshop/Lightroom).
- 3D modeling software (Blender): lead modeler for 3D game *Amber* and simulation developer for Strategic Robotic Systems. Some experience in SolidWorks.
- FCC-licensed amateur radio operator; designed 21 MHz transmitter (project on hiatus).
- Side interest in reverse-engineering and documentation; disassembles/repairs electronics for fun.

> VOLUNTEERING

- Contributor to various open-source organizations, including GIMP and Rizin alongside own projects.
- Consistent volunteer for Wesleyan's *Waste Not* program—collecting tons of unwanted items each year to sell for charity.

> HONORS

- Johnston Prize of 2021, Wesleyan University physics department
- CSAW 2020 US–Canada finalist, NYU Tandon School of Engineering
- picoCTF 2018 3rd place team, Carnegie Mellon University