

# Joshua Hiller

joshhiller8@gmail.com • (914)-582-4637 • [josh-hiller.com](http://josh-hiller.com)

## EDUCATION

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**Union College | Schenectady, NY**

**B.S. in Physics**

**Expected June 2026**

**Relevant Courses:** Computational Physics, Scientific Computing, Modern Experimental Physics, Intermediate Electromagnetism, Relativity & Quantum Mechanics

## TECHNICAL SKILLS AND CERTIFICATIONS

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**Programming Languages:** Python (Advanced), Qiskit (Advanced), PyTorch, TensorFlow, LangChain, scikit-learn

**Certifications:** IBM Quantum, Feb 2025: Variational Algorithm Design, Practical Introduction to Quantum-Safe Cryptography, Basics of Quantum Information

## RELEVANT EXPERIENCE

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**NextDimension AI | AI Engineering Intern (Incoming) | Remote**

**Feb 2026 – May 2026**

- Analyze conversation flows for AI agents to identify failure modes, inefficiencies, and UX gaps.
- Conduct data-driven evaluations of conversational behavior and propose targeted system improvements.
- Support AI model experimentation and product-focused engineering in collaboration with a fast-moving startup team.

**HUMAN Security | Software Developer Intern | New York, NY**

**Jun 2025 – Sep 2025**

- Worked on malvertising detection systems using ML-based image analysis and fraud detection techniques.
- Developed and optimized Python pipelines, improving detection accuracy and reducing false positives.
- Implemented and evaluated ML workflows in collaboration with security and engineering teams.

**Union College Department of Physics | Undergraduate Researcher | Schenectady, NY**

**Jun 2023 – Present**

- Conducted early experimental research in quantum optics (parametric downconversion), gaining hands-on experience with data acquisition and statistical analysis.
- Currently completing an undergraduate thesis focused on high-order finite-difference methods for quantum mechanical eigenvalue problems.
- Developing and benchmarking Python-based numerical solvers for canonical systems (e.g., harmonic oscillator, infinite square well), analyzing accuracy, stability, and computational efficiency.

**IBM Quantum (Qiskit) | Open Source Contributor**

**Dec 2023 – Present**

- Developed Python tools and educational notebooks for the Qiskit open-source quantum computing framework.
- Collaborated with global contributors to enhance documentation, resolve bugs, and support feature development.

## LEADERSHIP EXPERIENCE

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**Union College Men's Swimming & Diving | Team Captain**

**Sep 2022 – Present**

- Four-year NCAA Division III varsity athlete; elected Men's Team Captain for the 2025–2026 season.
- Led team culture, accountability, and training logistics while balancing a rigorous physics curriculum.

**Student-Athlete Advisory Committee (SAAC) | Union College**

**Sep 2023 – Present**

- Represented the men's swim team in division-wide discussions on athlete experience, policies, and programming.

**Brand Ambassador & Delivery and Setup Specialist | Roomie Inc.**

**Apr 2023 - Present**

- Provide sales and marketing services to enhance the college move-in experience for students seeking better living spaces.
- Managed over 100 furniture deliveries, optimizing setup time and improving customer satisfaction.

**Intramural Work-Study | Union College Department of Athletics**

**Sep 2024 - Present**

- Increased event participation by improving organization and communication strategies.
- Ensured smooth event execution, fostering an inclusive and competitive environment for students.