Owen Lockwood

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Education

- **Rensselaer Polytechnic Institute** — Troy, NY
  Bachelor of Science in Computer Science and Philosophy, Minor in Physics; GPA: 3.88 — *Aug. 2018 – May. 2022*
  - **Relevant Coursework**: Machine Learning From Data, Learning and Advanced Game AI, Formal Logic and AI, Linear Algebra, Quantum Mechanics, Organic Chemistry I/II, Molecular Modelling, Cryptography, Ethics
- **Poudre High School** — Fort Collins, CO
  International Baccalaureate (IB) Diploma; GPA: 4.35 (Salutatorian) — *Aug. 2014 – May. 2018*

Experience

- **Rensselaer Polytechnic Institute** — Troy, NY
  Student Researcher, Si Group, Department of Cognitive Science — *Feb. 2020 - Present*
  - **Research Focus**: Working on improving model-free reinforcement learning and applying quantum machine learning techniques to reinforcement learning tasks to evaluate the potential quantum advantages

  Student Researcher, Garde Group, Department of Chemical and Biological Engineering — *Sep. 2018 - Present*
  - **Research Focus**: Analysis of molecular simulations with machine learning techniques, specifically feature extraction of local molecular structures in liquid water
- **Colorado State University** — Fort Collins, CO
  Student Research Assistant, Wu Group, Department of Physics — *May. 2018 - Aug. 2018*
  - **Research Focus**: Collected data for a variety of experiments, e.g. Ferromagnetic Resonance (FMR), on magnetic thin films including yttrium iron garnet (YiG) and barium ferrite (BaM)

  Student Research Assistant, Levinger Group, Department of Chemistry — *May. 2018 - Aug. 2018*
  - **Research Focus**: Investigated plant cell microscopy and optimized the methods used to image individual plant cells in Coherent Anti-Stokes Raman Scattering (CARS) and confocal fluorescent microscopy

Publications and Writings

- **Lockwood, Owen**, and Mei Si. "Playing Atari with Hybrid Quantum-Classical Reinforcement Learning." *The pre-registration experiment: an alternative publication model for machine learning research.* Neural Information Processing Systems. Workshop. 2020.
- **Lockwood, Owen**. "My experience with TensorFlow Quantum." *The Tensorflow Blog*, Google, 27 Nov. 2020, https://blog.tensorflow.org/2020/11/my-experience-with-tensorflow-quantum.html
- **Lockwood, Owen**, and Mei Si. "Reinforcement Learning with Quantum Variational Circuit." *Proceedings of the AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment.* Vol. 16. No. 1. 2020.

Honors and Awards

- **First Place Poster, Computational Sciences** — 2019
  Rensselaer Polytechnic Institute Undergraduate Research Symposium
- **Meritorious Paper Winner (top 5%)** — 2019
  The Mathematical Contest in Modeling (MCM)
- **Rensselaer Leadership Award** — 2018
- **2nd Place in 10-19 Age Group** — 2017
  Beat the Heat Marathon

Skills

- **Technical**: Python, C/C++, FORTRAN, MIPS, Java, Haskell, TensorFlow/Keras, TensorFlow-Quantum, Cirq, LaTeX
- **Non-Technical**: Technical Writing, Public Speaking, Research, Philosophy, Teamwork

Projects and Extracurricular Activities

- **Rensselaer Polytechnic Institute Judicial Board** — Troy, NY
  Vice-Chair, Student Motor Vehicle Chair, and Treasurer — *Jan. 2019 - Present*
- **Rensselaer Center for Open Source** — Troy, NY
  Project Member: Open Source Curriculum and Cybernetics Core — *2018-2019*
- **Upsilon Pi Epsilon**
  International Honor Society for the Computing and Information Disciplines — *Dec. 2020 - Present*