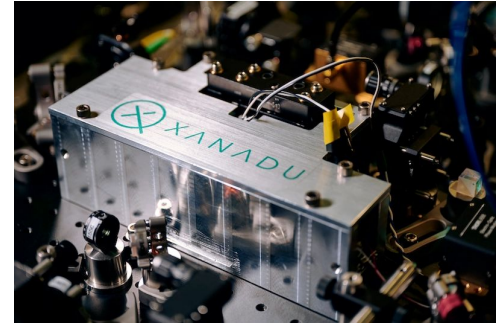


Rachel E. C. Smith, PhD

- 2014 – 2018: BS in Physics @ U. of Illinois, Urbana-Champaign
- 2018 – 2025: PhD in High Energy Particle Physics @ Stanford/SLAC
- 2025 – Present: AI/ML Specialist @ [Xanadu Quantum Technologies Inc.](#)



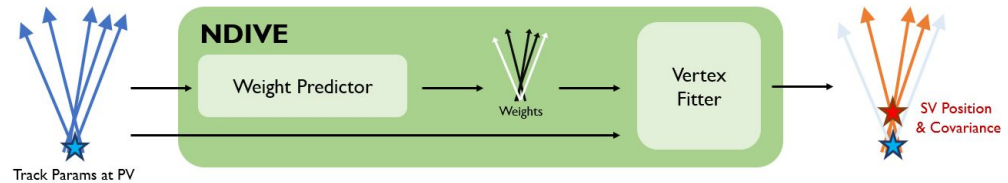
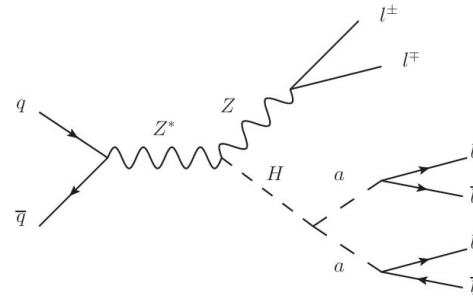
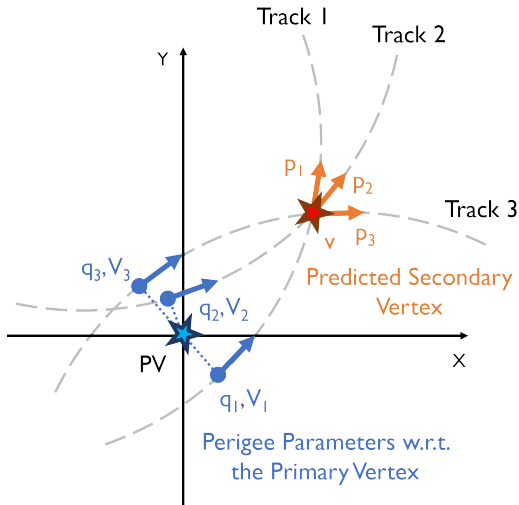
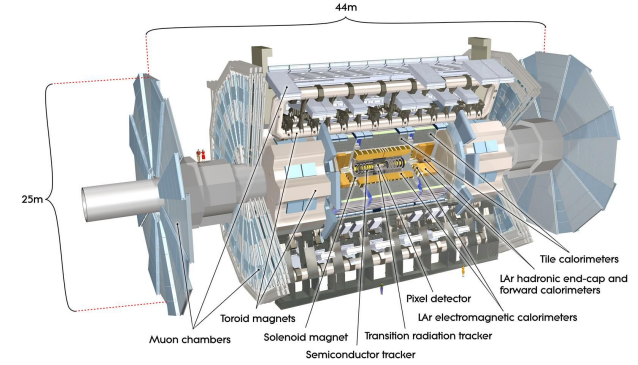
Grad School

- Search for exotic decays of the Higgs boson using the ATLAS detector
- Differentiable vertex fitting for jet flavor tagging

<https://journals.aps.org/prd/abstract/10.1103/mzld-ldlt>

<https://journals.aps.org/prd/abstract/10.1103/PhysRevD.110.052010>

<https://searchworks.stanford.edu/view/in00000381733>





- Mission: “To build quantum computers that are useful and available to people everywhere.”
- Headquarters in Toronto, Canada; founded in 2016
- Photonic approach to quantum computing



- [Pennylane](#): open-source Python framework for programming (hardware agnostic) quantum computers, quantum machine learning, and quantum chemistry
- [January 22, 2025](#): Xanadu demonstrates “Aurora”, a 12 qubit machine consisting of four modular independent server racks that are photonically interconnected and networked together



AI Optimization of Photonic Components

- Accelerating quantum chip design to reduce loss, improve manufacturability, and cut design time
- GPU-accelerated simulation of photonic circuit components
- Gradient-based shape optimization
- Bayesian optimization for efficient parameter search

