Samuel Fahey

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Data Analyst – Astrophysicist

Passionate scientist with strong analytical skills and five years of experience building software tools for data analysis; leader of research teams in a large international collaboration, practiced in communication and prioritization of tasks for complex analysis projects.

Education

University of Wisconsin – Madison | **MS in Physics** | **PhD in Physics** *(conferred December 2018)*

University of Wisconsin – Eau Claire | **BS in Physics; summa cum laude, departmental honors**

Skills

- Python
- C++
- LateX
- Machine Learning
- SQL
- Public Speaking
- Statistical Analysis
- Analysis Design
- Data Visualization
- Technical Writing
- Critical Thinking
- Project Leadership

Experience

Developing analyses to search for correlation of neutrino data with multi-messenger astronomical observations

- Optimized directional uncertainty of track-like events with random forest regression
- Set most constraining limits on neutrino flux from fast radio bursts

Maintaining software for rapid follow-up searches for high-energy neutrino emission from astronomical alerts

- Monitor emergency systems, report to global community on neutrino observation of unique sources

Testing data acquisition systems, measuring detector response to extreme signal events (2014 – 2016)

Performing asteroid photometry, light-curve analysis (2012-2014)

Two-photon microscopy, studying quaternary structure of rhodopsin protein (2013)

Constructing Tempe cell apparatus, measuring water retention and thermal properties of backfill soils (2012)

Teaching and tutoring university physics, preparing educational materials leading group discussion (2012-2015)

Publications

- "A Search for Neutrino Emission from Fast Radio Bursts with Six Years of IceCube Data"
  The Astrophysical Journal, 857 (2018) 117. (https://arxiv.org/abs/1712.06277)
- "A Search for Neutrinos from Fast Radio Bursts with IceCube"
  The Astrophysical Journal, 845 (2017) 1, 14. (https://arxiv.org/abs/1611.03062)
- "The Rotation Period of 4528 Berg"
  Minor Planet Bulletin, 42 (2015) 148.