Will Thompson

303-815-8295 | will.w.thompson@gmail.com | www.linkedin.com/in/WillHWThompson |
https://github.com/WillHWThompson

Education

St. John's College Santa Fe, NM
Bachelor of Arts in Liberal Arts *May 2020*

- GPA: 3.95/4.0
- Dean's Award for College Service

Grants and Awards

Science Undergraduate Laboratory Internship(SULI) Grant 2020
US Department of Energy

Dean's Award for College Service 2020
St. John's College

Robert Neidorf Memorial Scholarship for Academic Excellence 2018
St. John's College

Award for Relating Intense Education to Life(ARIEL) Grant 2017
St. John's College

Experience

Los Alamos National Labs January 2021 – Present
Post-Baccalaureate Researcher *Los Alamos, NM*

- Constructed new photon detector system with over 200 photo multiplier tubes for Coherent Captain Mills(CCM),a 10-ton liquid argon scintillation detector
- Developed and maintained code bases for detector slow-controls and nearline diagnostics, added new sensors and functionality to both
- Implemented significant upgrades to the data acquisition system and operations website, dramatically increasing system stability and allowing for digitization of more 246 channels simultaneously
- Performed SPE and event rate calculation both with EJ detectors and CCM data
- Automated detector shift system by developing JavaScript applets to send automated shift reminders and created an automated dial-out system to notify essential personnel in emergencies

MITRE Corporation August 2020 – December 2020
Data Scientist *Santa Fe, NM*

- Applied complex systems science to solve real world problems and develop deliverables for government sponsors
- Co-developed Strategy Mining, an open-source genetic programming framework for agent-based models.
- Applied Bak-Tang Weinsfield sandpile model to toy models of federated satellite networks in attempt to understand effect of network structure on self-organized critically
- Used network analysis and topic modeling to explore the semantic structure of corpus of 1.3 million US judicial opinions. My results informed the development of a new legal search engine
- Contributed to three projects and co-authored 2 research papers

St John's College May 2019 – May 2021
Head Senior Lab Assistant *Santa Fe, NM*

- Oversaw development of tabletop quantum optics set-up for instruction
- Managed teams of 4 lab assistants, instructing them in theory and procedure for atomic physics and microbiology labs
- Tutored students in individual sessions, helped them to understand technical mathematical material
- Developed new labs and writings read by hundreds of students

Carnegie Mellon University June 2018 – August 2018
Undergraduate Research Fellow *Pittsburgh, PA*

- Conceived of and completed research project using natural language processing and machine learning to perform comparative analysis of the structure of philosophical treatises
- Developed and implemented novel statistical models to analyze structure of texts through use of random walks
- Authored two research papers currently in peer review, listed as first author on one

Santa Fe Institute June 2017 – June 2018

Undergraduate Researcher *Santa Fe, NM*

- Conducted independent research, employed natural language processing and machine learning to understand the role of the chorus in Greek tragedy
- Presented results of research to researchers and faculty members in presentation

Publications

- A. A. Aguilar-Arevalo et al. "Axion-Like Particles at Coherent CAPTAIN-Mills", arXiv:2112.09979 [hep-ph](2021)
- A. A. Aguilar-Arevalo et al. "First Leptophobic Dark Matter Search from Coherent CAPTAIN-Mills", Phys. Rev. Lett. 129(2022) - https://link.aps.org/doi/10.1103/PhysRevLett.129.021801]
- A. A. Aguilar-Arevalo et al. "First dark matter search results from Coherent CAPTAIN-Mills", Phys. Rev. D, 106(2022) — https://link.aps.org/doi/10.1103/PhysRevD.106.012001
- M. Koehler et al.: "The structure and dynamics of US common law", Front. Phys., 07 January 2022 — https://doi.org/10.3389/fphy.2021.695219
- G. Salmon. **W.H.W. Thompson**, S. DeDeo: "Consilience and the cultural evolution of conceptual networks in London's Royal Society", Proc. R. Soc. B(in review)
- **W.H.W. Thompson**, Z. Wojitski, Simon DeDeo: "Levy Flights of the Collective Imagination", arXiv: arXiv:1812.04013 [cs.SI](2018).

Conference Presentations

- **W. Thompson**, Coherent Captain Mills Dark Matter Search, oral presentation delivered at Magnificent CEvNS, virtual, October 2021
- **W. Thompson**, Searching for Light Dark Matter with Coherent Captain Mills, oral presentation delivered at the University of New Mexico's Nuclear and Particle Physics(NUPAC) Colloquia Series, May 2021

Projects

Strategy Mining August 2020 – December 2020

- Open-source genetic programming framework allows evolution of agent based models. Compatible with NetLogo and MASON
- Github: https://github.com/mitre/strategy-mining

Technical Skills

Programming Languages: Python, C++, Java, JavaScript
Frameworks and Libraries C++: ROOT, **Python**: pandas, numpy, scikit, scikit-learn, sympy, matplotlib,nltk
Other:UNIX systems, MySQL,MongoDB

References

Richard Van De Water

Staff Scientist

Los Alamos National Labs

P-2 Pure and Applied Physics

vdwater@lanl.gov

William Louis
Staff Scientist
Los Alamos National Labs
P-2 Pure and Applied Physics
louis@lanl.gov

Simon DeDeo
Assistant Professor
Carnegie Mellon University
Department of Social and Decision Sciences
sdedeo@andrew.cmu.edu

Matthew Koehler
Applied Complexity Scientist
MITRE Corporation
sdedeo@andrew.cmu.edu