William Hunter Barndt

Research Scientist - Data Analyst - Software Engineer

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Recent graduate with a passion for acquiring in-depth knowledge in both physics and computer science and dedicated to applying this expertise to tackle intricate problems. Naturally curious and detail-oriented, I proactively seek opportunities for learning and rapidly apply acquired knowledge.

Education

B.S. Physics, Computational
Aug 2017 - May 2023
B.S. Computer Science
Aug 2017 - July 2023

University of Alaska, Fairbanks
Cum Laude - Cumulative GPA: 3.72

Physics Senior Capstone Project: *Investigating the Performance of a Semi-Professional Magnetometer for Space Weather Research: 13 years of Measurements from a Backyard in Anchorage*
C.S. Senior Capstone Project: *Deep Learning for Forest Fire Detection on UAVs*
Portfolio of Educational & Professional Projects: *https://www.basis-hunter.net/projects/*

Professional Experience

Geophysical Research Scientist
July 2023 - Present

Undergraduate Research Programmer
May 2021 - July 2023

Geographic Information Network of Alaska (GINA) - Geophysical Institute, University of Alaska, Fairbanks
Fairbanks, AK

- Geophysical Data Analysis: Effectively retrieving, processing, managing, and analyzing snow and meteorological data from in-situ instruments as a part of the ARM Mentor program using Python and IGOR Pro.
- Geospatial Data Analysis: Processing, analyzing and archiving various satellite data using Python and ArcGIS Pro.
- Developing and implementing processes and scripts for a variety of data processing of and enhancing work infrastructure.
- Developed customized scripts for system diagnostics, enhancing the visualization and optimization of our near real-time satellite data processing stack.

Teaching Experience

Undergraduate Tutor
Aug 2019 - May 2020

University of Alaska Anchorage
Anchorage, AK

- Part-time UAA General Physics Tutor, tutoring Algebra and Calculus-based Introductory Physics: Newtonian Mechanics, Electricity and Magnetism, and Optics.

Publications and Presentations

Wang, Y., et. al (2023). Toward Energy-Efficient Deep Neural Networks for Forest Fire Detection in an Image. Accepted for publication to *The Geographical Bulletin*, (Earth from Above: AmericaView, Remote Sensing, and Geospatial Technology). Computer Science Degree Senior Capstone Project.

Barndt, W. H., Öztürk, D. S., & Reeves, W. (2023). Investigating the Performance of a Semi-Professional Magnetometer for Space Weather Research: 13 years of Measurements from a Backyard in Anchorage. *Journal of Society of Amatuer Radio Astronomers*, (Sept-Oct Issue, pg. 63-75).

Barndt W. H., Dierking C. F., Delamere J. S. (2023). Historical Remotely Sensed Snowpack Assessment of the Chena Basin in Alaska During the Snow Depletion Period. Poster presented at American Meteorological Society's 37th Conference on Hydrology, Denver, CO, January 2023.

Research Experience

Snow, Ice, and Permafrost Group, Geophysical Institute, University of Alaska Fairbanks

Project: Snow Hydrology - The Study of the Snow's Role in the Water Cycle
Project Advisor(s)- Dr. Matthew Sturm & Dr. Jen Delamere
(July 2023 - Present)
[Manuscript(s) in Progress]

Arkoda Analytics

Project: How Do Americans Use Their Time? A Systematic Investigation using the American Time Use Survey (ATUS)
Project Coordinator - Dr. Calen J. Horton
(Aug 2023 - Present)
[Manuscript(s) in Progress]

Space Weather Underground (SWUG), Geophysical Institute, University of Alaska, Fairbanks

Project: Investigating the Performance of a Semi-Professional Magnetometer for Space Weather Research: 13 years of Measurements from a Backyard in Anchorage
Project Advisor - Dr. Doğacan S. Öztürk
(Aug 2022 - June 2023)

Geographic Information Network Of Alaska, Geophysical Institute, University of Alaska Fairbanks

Project: Historical Remotely Sensed Snowpack Assessment of the Chena Basin in Alaska During the Snow Depletion Period
Project Advisor(s) - Carl Dierking & Dr. Jen Delamere
(May 2021 - Dec 2022)

Plasma Physics Laboratory, University of Alaska, Anchorage

Project(s): Expanding the Study of Plasma Discharge Conditions with Computational and Experimental Models
Project Advisor - Dr. Nathaniel Hicks
(Aug 2019 - Dec 2022)

Individual Research Study, University of Alaska, Anchorage

Project: Analysis of Simulated IceTop Detector Data to Study the Behavior of Snow Attenuation on Cosmic Ray Signals in the Detector

Project Advisor - Dr. Katherine Rawlins

(Aug 2018 - May 2019)

Awards & Honors

- **Alaska Space Grant Apprenticeship Award**

  Apprenticeship grant to fund my full-time UAA Plasma Physics Laboratory project on studying atmospheric pressure plasma discharge, computationally and experimentally. Accepted Project Proposal.

  University of Alaska Anchorage

  (Summer 2020)
- **Outstanding Physics Student of the Year Award - 2022-2023**

  University of Alaska Fairbanks
- **Chancellor's List - Fall 2022, Fall 2020**

  University of Alaska Fairbanks & Anchorage
- **Dean's List - Fall 2021, Spring 2021, Fall 2019, Spring 2019, Spring 2018**

  University of Alaska Fairbanks & Anchorage

Memberships & Societies

- **Society of Physics Students (SPS), University of Alaska Fairbanks**

  UAF's SPS Chapter Alumni:

  Vice President - (2022-2023)

  Treasurer - (2021-2022)
- **American Meteorological Society**

  Student Membership

  (2022-2023)

Technical Skills

- 3+ years Python
  - Proficient tools include: pandas, matplotlib, numpy, Jupyter Notebooks, scipy, TensorFlow, arcpy
- 2+ years C/C++
- Experience with: Bash, Lua, Java, HTML and CSS
- Use IGOR Pro for Data Analysis and ArcGIS Pro for Geospatial Data Analysis
- Proficient using git version control and GitHub for project management
- Proficient in Linux, Mac, and Windows
- Google and Microsoft Software in Workflow: Sheets/Excel, Docs/Word, Cloud Drives

Other Professional Experience

Sales Associate

June 2015 - Aug 2020 (Eagle River, AK)
Aug 2020 - June 2022 (Fairbanks, AK)

Walmart Inc.

Eagle River, AK
Fairbanks, AK

- Worked part-time during university semesters and full-time during the summer as a Sales Associate in Seasonal-Garden Center (Eagle River) and Electronics (Fairbanks), specialized in customer assistance, inventory and cleanliness management, and mentoring new team members.
- Received 5 “Happy to Help” awards for outstanding customer service and workplace proficiency.