Amanda Worthy

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Research Interests

Urban Building Energy Performance, Machine Learning, Air Quality, Geospatial Data Analysis

Education

University of Washington — Seattle, WA
Ph.D. in Civil Engineering, Data Science Option — Sep 2021 – Present
Advisor: Dr. Narjes Abbasabaddi, *GPA: 3.94.*

University of Washington — Seattle, WA
M.Sc. in Civil Engineering — Sep 2020 – Aug 2021
GPA: 3.92

University of Colorado — Boulder, CO
B.Sc. in Environmental Engineering, Applied Math Minor — Aug 2016 – May 2020
Mentor: Dr. Michael Hannigan, *GPA: 3.75, Cum Laude*

Awards

Clean Energy Institute Graduate Fellow	2024-2025
International Research Exchange for Students Cohort Participant (NSF)	2023-2024
Herbold Data Science Fellow	2021-2022
Valle Scandinavian Research Exchange Fellow	2021-2022
Poster Finalist - UW Climate Solutions Symposium	2025
Research Communication Award - UW Climate Solutions Symposium	2024
NSF US-Japan Workshop Travel Award	2024
UW Graduate School Travel Award	2023
UW Graduate and Professional Student Senate Travel Award	2023

Teaching Experience

Predoctoral Instructor, University of Washington

AA 210: Engineering Statics	SPR 25

Instructor, UW STEMsub (Math Science Upward Bound)

Machine Learning and Data Science Course	SUM 24

Teaching Assistant, University of Washington

ARCH 498: Introduction to AI and Machine Learning in the Built Environment	AUT 24
ARCH 508: Research Studio, AI in Performance-driven Design	SPR 24
CSE 412: Introduction to Data Visualization	SPR 23, WIN 24
CSE 442: Data Visualization	AUT 23

Course Assistant, University of Colorado

APPM 4570: Statistical Methods in R	SPR 19, SPR 20
MCEN 2023: Statics and Structures	AUT 18

Research Experience

University of Washington — Seattle, WA, USA

Research Assistant — Sep 2020 – Present
Mentors: Dr. Narjes Abbasabadi, Dr. Julian D. Marshall, Dr. Steve Muench

Norwegian Institute of Science and Technology — Trondheim, NO
Visiting Valle Scholar — Apr 2022 - Sep 2022
Mentors: Bjørn Aas, Dr. Salvatore Carluccii

Kyushu University — Fukuoka, JP
NSF International Research Exchange for Students Cohort Participant — Summer 2023
Mentors: Dr. Hooman Farzaneh

Industry Experience

US Environmental Protection Agency, Region 8 — Denver, CO
Applied Science Intern — Summer 2019
Performed time-series analysis on seep and springs water quality data collected adjacent to a uranium mill. Identified sites with analyte abnormalities and focus areas for remediation.

Publications

A framework for augmenting simulation-based building energy models with earth-observational urban microclimate and morphological data products , Worthy A., Ashayeri M., Marshall J., Abbasabadi N., *in progress.*

Leveraging Earth Observational Data and Machine Learning to Enhance Urban Building Energy Modeling (UBEM) with Microclimate Effects, Worthy A., Ashayeri M., Abbasabadi N., *Sustainable Cities and Society (2025),* doi.org/10.1016/j.scs.2025.106544

Bridging the simulation-to-reality gap: A comprehensive review of microclimate integration in urban building energy modeling (UBEM), Worthy A., Ashayeri M., Marshall J., Abbasabadi N., *Energy and Buildings (2025),* doi.org/10.1016/j.enbuild.2025.115392

Posters and Presentations

Sustainability Tank Presentation: Assessing the impact of microclimates on Urban Building Energy Models and their implications with equity, Worthy A., Ashayeri M., Abbasabadi N., *9TH ASTFE Thermal and Fluids Engineering Conference*, Corvallis, OR, 2024.

Leveraging earth observational data to assess the impact of microclimates on Urban Building Energy Models (UBEMs): A data-driven case study in Seattle, Washington, Worthy A., Ashayeri M., Abbasabadi N., *NSF Workshop: Re-thinking the Relationship between Built Environment Conditions and Health and Well-being in Changing Climatic, Social, and Technological Contexts*, Tokyo, JP, 2024.

The influence of outdoor temperature on Norwegian swimming hall energy consumption, Worthy A., Andresen I., Carlucci S., Aas B., *10th International Conference on Swimming Pools and Spas*, Bologna, IT, 2023

Field investigation of wind speeds in suburban terrain, Worthy A., Wang S., Estephan J., Irwin P., Chowdhury A., Lyman G., Reed D., *14th Americas Conference on Wind Engineering*, Lubbock, TX, 2022

Investigation of Wind-Induced Dynamic Effects on Rooftop Solar Arrays, Estephan J., Wang S., Worthy A., Chowdhury A., Irwin P., Reed D., Chen D., Lyman G., *14th Americas Conference on Wind Engineering*, Lubbock, TX, 2022

Peak wind effects on low-rise building roofs and rooftop PV arrays, Estephan J., Braun R., Chowdhury A., Gordon C., Irwin P., Johnson G., Kennedy B., Lyman G., Raney E., Reed D., Sanford R., Wang S., Worthy A., *6th AAWE Workshop Proceedings*, Clemson, SC, 2021

Skills

Programming: Python (pandas, geopandas, numpy, Scikit-learn, Xarray, rasterio), R, JavaScript, Google Earth Engine, Vega-Lite, Tableau, Bash, Git

Leadership Service

Peer Graduate Mentor, SWE at UW	Oct 2024 - Present
Sponsorship Coordinator and Board Member, Alpine Club at CU	Aug 2017 - May 2020
Peer Mentor, CU Environmental Engineering Department	Aug 2019 - May 2020
AVID Tutor, Boulder High School	Jan 2019 - May 2019
Statistics and R Tutor, CU Leeds School of Business	Aug 2019 - May 2020

Hobbies

I enjoy nordic ski racing, backcountry skiing, and swimming.