

Brenden Pelkie

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Education

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| University of Washington <i>PhD in Chemical Engineering, in progress</i> GPA: 4.0 | Seattle, WA 2020-Present |
| Montana State University <i>Bachelor's of Science in Chemical Engineering</i> <i>Bachelor's of Science in Applied Mathematics</i> GPA: 4.0 | Bozeman, MT 2016-2020 |

Research Experience

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| University of Washington <i>Graduate Researcher; Advisor: Prof. Stéphanie Valleau</i> Ab-Initio Kinetics / Machine Learning / Heterogeneous Catalysis <ul style="list-style-type: none">• Learn computational methods for reaction Minimum Energy Path calculations• Develop machine learning models to predict catalyst performance | Seattle, WA 2020-Present |
| Montana State University <i>Undergraduate Researcher; Advisor: Prof. Ryan Anderson, Prof. Joseph Seymour</i> Computational Fluid Dynamics (CFD) / Magnetic Resonance Imaging (MRI) / Thermal Energy Storage <ul style="list-style-type: none">• Developed CFD models of packed bed thermal energy storage systems using STAR-CCM+• Collected and analyzed magnetic resonance velocimetry data from convection experiments | Bozeman, MT 2017-2020 |
| Colorado School of Mines <i>Research Experience for Undergraduates; Advisor: Prof. Tzahi Cath</i> Wastewater Treatment/ Multiphase CFD <ul style="list-style-type: none">• Developed a multiphase model of a hydraulic selector in ANSYS Fluent• Designed and performed experiments to validate model• Assisted in pilot scale experiment operations and data collection | Golden, CO Summer 2019 |
| Montana State University <i>Undergraduate Researcher; Advisor: Prof. Ed Adams</i> Snow Melt Dynamics / Snow Structural Characterization <ul style="list-style-type: none">• Investigated effects of environmental conditions on snow structure and melt• Evaluated a new instrument (capacitance probe) for use in measuring snow melt• Analyzed snow structure with micro-CT scanner | Bozeman, MT 2017-2018 |

Awards and Fellowships

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| John C. Berg Fellow <i>University of Washington Chemical Engineering Departmental Award</i> | 2020-2021 |
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| College of Engineering Dean's Fellow <i>University of Washington Recruitment Award</i> | 2020-2024 |
| Barry M. Goldwater Scholar <i>National Undergraduate-Level Award for Research Excellence</i> | 2019 |
| Montana State University Presidential Scholar <i>Undergraduate Level Award for Academic Excellence and Leadership</i> | 2016-2020 |

Publications

1. Skuntz, Matthew E., **Pelkie, Brenden Galen**, et al. "Axial variability of pattern formation in Rayleigh-Benard convection: MRI velocimetry in a low aspect ratio cylinder." *International Communications in Heat and Mass Transfer* 118 (2020): 104869.

Presentations

1. **Pelkie, B.G.**, (January 2020) Fuel Security: Phase Change Materials for Energy Storage. General audience talk at Montana State University Student Innovation 8x8 Event, Bozeman, MT.
2. **Pelkie, B.G.**, Skuntz, M.E, Seymour, J.D, Anderson, R. (April 2019) Pattern Formation in Rayleigh-Benard Convection. Oral presentation at the National Conference on Undergraduate Research, Kennesaw State University, Kennesaw, GA.
3. **Pelkie, B.G.**, Skuntz, M.E, Anderson, R., Seymour, J.D. (July 2018). Natural Convection Flow Patterns in an Empty Cylinder. Poster presented at Idea Network in Biological Research and Engineering Summer Poster Session, Montana State University, Bozeman, MT.
4. **Pelkie, B.G.** (April 2018). Methods for Creating Snow Melt-Freeze Crusts, Poster presented at Western Regional Honors Conference, Chapman University, Orange, CA.
5. **Pelkie, B.G.** (April 2017). Validation of a capacitance probe for use in detecting solid-liquid phase change of water in a snowpack, Poster presented at Student Research Celebration, Montana State University, Bozeman, MT.

Community Engagement and Outreach

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| Stoked on Spokes Cycling Advocacy Club <i>Founder and President</i> | Bozeman, MT 2018-2020 |
| Gallatin County Search and Rescue, Alpine Rescue and Posse Teams <i>Volunteer Responder</i> | Bozeman, MT 2016-2020 |
| Eagle Mount Adaptive Recreation Program <i>Volunteer Ski Instructor for People with Disabilities</i> | Bozeman, MT 2016-2019 |
| Sigma Phi Epsilon <i>Member</i> | Bozeman, MT 2017-2020 |