
KATHRYN HINKELMAN, PhD

September 2026

Contact Information

Department of Civil and Environmental Engineering
University of Vermont
217 Votey Hall
33 Colchester Ave, Burlington, VT 05405

kathryn.hinkelman@uvm.edu
theseelab.org
[Google Scholar Profile](#)
ORCID: [0000-0002-8297-6036](https://orcid.org/0000-0002-8297-6036)
Former Surname: Van Lieshout

Education

Pennsylvania State University Jul 2023
[Ph.D. in Architectural Engineering](#)
Concentration in Mechanical | GPA: 4.0
Thesis: *Modelica modeling & ecosystem biomimicry of district energy systems*

University of California at Berkeley May 2015
[M.S. in Mechanical Engineering](#)
Concentration in Design | GPA: 4.0
Thesis: *Environmental impact and indoor environmental quality assessment of Pinoleville Pomo Nation demonstration home: An implementation of life cycle assessment and culturally-inspired design*

University of Denver Jun 2013
[B.S. in Mechanical Engineering](#)
Summa Cum Laude, Phi Beta Kappa, Departmental Distinction | GPA: 3.97
Thesis: *Intensity rankings of plyometric exercises using joint power absorption*

Appointments

University of Vermont
[Assistant Professor](#), Dept. of Civil and Environmental Engineering Aug 2024 – Present
[Affiliate Faculty](#), Center for Resilient Energy & Autonomous Technologies in Engineering (CREATE) Aug 2024 – Present
[UVM Affiliate](#), Gund Institute for the Environment Dec 2024 – Present
[Affiliate Faculty](#), Casella Center for Circular Economy and Sustainability Aug 2025 – Present

Pennsylvania State University
[Postdoctoral Scholar](#), Sustainable Buildings and Societies Laboratory Jul 2023 – Aug 2024
[IBUILD Research Fellow](#), U.S. Dept. of Energy, Building Technologies Office Jan 2022 – Jul 2023
Advisor: Dr. Wangda Zuo

University of Colorado Boulder
[IBUILD Research Fellow](#), U.S. Dept. of Energy, Building Technologies Office Aug 2021 – Dec 2021
[Research Assistant](#), Sustainable Buildings and Societies Laboratory May 2019 – Aug 2021
[Teaching Assistant](#), Dept. of Civil, Environmental & Architectural Eng. Aug 2018 – May 2019
Advisor: Dr. Wangda Zuo

Boulder Engineering Company
[Mechanical & Electrical Engineer](#) Jul 2016 – Jul 2018
[Mechanical Engineer](#) Jul 2015 – Jul 2016

University of California at Berkeley
[Research Assistant](#), Berkeley Energy and Sustainable Technologies Laboratory Jan 2014 – May 2015
[Teaching Assistant](#), Dept. of Mechanical Engineering Aug 2013 – Jan 2014
Advisor: Dr. Alice Agogino

Research Interests

Sustainable energy systems (cities, districts, buildings), thermo-fluid science, equation-based modeling (Modelica), numerical simulation, biomimicry/bio-inspired design, life cycle assessment, building controls

Peer-Reviewed Journal Articles

- J-1. (Under Review). Capozzi, Jaiden, Paige Brochu, **Kathryn Hinkelman**, Bindu Panikkar. "Addressing the scalar mismatch within energy burden: Spatial analysis of energy burden across households in Glover, VT." *Energy Policy*.
- J-2. Milner, David, **Kathryn Hinkelman**, Jeffrey Gifford, Wangda Zuo, Zhiwen Ma. 2026. "Sand-Based Thermal Storage for Building Heating Applications: A District Energy Case Study." *Asia-Pacific Journal of Science and Technology*, 31(2). [10.22299/apst.2026.269752](https://doi.org/10.22299/apst.2026.269752).
- J-3. **Hinkelman, Kathryn**, Juan Diego Flores Garcia, Saranya Anbarasu, Wangda Zuo. 2025. "A Review of Multi-Energy Systems from Resiliency and Equity Perspectives." *Energies*, 18(17): 4536. [10.3390/en18174536](https://doi.org/10.3390/en18174536).
- J-4. Anbarasu, Saranya, **Kathryn Hinkelman**, Wangda Zuo. 2025. "Thermo-hydraulic Steam Pipe Models for District Heating Simulations: Simplifications to Balance Accuracy and Simulation Speed." *Building Simulation*, 18: 2151-2174. [10.1007/s12273-025-1298-7](https://doi.org/10.1007/s12273-025-1298-7).
- J-1. Anbarasu, Saranya, **Kathryn Hinkelman**, Wangda Zuo, Victor Mendez Ferreira. 2025. "Optimal Operation of Multi-Plant Steam District Heating Systems for Enhanced Efficiency and Sustainability." *Energy Conservation and Management*, 325: 119298. [10.1016/j.enconman.2024.119298](https://doi.org/10.1016/j.enconman.2024.119298).
- J-2. Anbarasu, Saranya, **Kathryn Hinkelman**, Jing Wang, Wangda Zuo. 2024. "Exploring the Effects of Interdependencies on Energy Systems in Smart Communities: A Multi-Domain Modeling and Quasi-Monte Carlo Sensitivity Analysis." *Energy & Buildings*, 319:6 114510. [10.1016/j.enbuild.2024.114510](https://doi.org/10.1016/j.enbuild.2024.114510).
- J-3. **Hinkelman, Kathryn**, Saranya Anbarasu, Wangda Zuo. 2024. "Exergy-Based Ecological Network Analysis for Building and Community Energy Systems." *Energy & Buildings*, 303: 113807. [10.1016/j.enbuild.2023.113807](https://doi.org/10.1016/j.enbuild.2023.113807).
- J-4. **Hinkelman, Kathryn**, Yizhi Yang, Wangda Zuo. 2023. "Engineering Applications and Design Methodologies for Ecosystem Biomimicry: An Interdisciplinary Review Spanning Cyber, Physical, and Cyber-Physical Systems." *Bioinspiration & Biomimetics*, 18:2 021001. [10.1088/1748-3190/acb520](https://doi.org/10.1088/1748-3190/acb520).
- J-5. Ildiri, Nasim, Heather Bazille, Yingli Lou, **Kathryn Hinkelman**, Whitney Gray, Wangda Zuo. 2022. "Impact of WELL Certification on Occupant Satisfaction and Perceived Health, Well-being, and Productivity: A Multi-Office Pre- Versus Post-Occupancy Evaluation." *Building and Environment*, 224: 109539. [10.1016/j.buildenv.2022.109539](https://doi.org/10.1016/j.buildenv.2022.109539).
- J-6. **Hinkelman, Kathryn**, Saranya Anbarasu, Michael Wetter, Antoine Gautier, Wangda Zuo. 2022. "A Fast and Accurate Modeling Approach for Water and Steam Thermodynamics with Practical Applications in District Heating System Simulation." *Energy*, 254:A 124227. [10.1016/j.energy.2022.124227](https://doi.org/10.1016/j.energy.2022.124227).
- J-7. **Hinkelman, Kathryn**, Jing Wang, Wangda Zuo, Antoine Gautier, Michael Wetter, Chengliang Fan, Nicholas Long. 2022. "Modelica-Based Modeling and Simulation of District Cooling Systems: A Case Study." *Applied Energy*, 311: 118654. [10.1016/j.apenergy.2022.118654](https://doi.org/10.1016/j.apenergy.2022.118654).
- J-8. Huang, Sen, Jing Wang, Yangyang Fu, Wangda Zuo, **Kathryn Hinkelman**, Raymond M. Kaiser, Dong He, Draguna Vrabie. 2021. "An open-source virtual testbed for a real Net-Zero Energy Community." *Sustainable Buildings and Society*, 75: 103255. [10.1016/j.scs.2021.103255](https://doi.org/10.1016/j.scs.2021.103255).
- J-9. Fan, Chengliang, **Kathryn Hinkelman**, Yangyang Fu, Wangda Zuo, Sen Huang, Chengnan Shi, Cary Faulkner, Xiaoqing Zhou. 2021. "Open-Source Modelica Models for the Control

Performance Simulation of Chiller Plants with Water-side Economizer.” *Applied Energy*, 299: 117337. [10.1016/j.apenergy.2021.117337](https://doi.org/10.1016/j.apenergy.2021.117337).

- J-10. Ye, Yunyang, **Kathryn Hinkelman**, Yingli Lou, Wangda Zuo, Gang Wang, Jian Zhang. 2021. "Evaluating the Energy Impact Potential of Energy Efficiency Measures for Retrofit Applications: A Case Study with U.S. Medium Office Buildings." *Building Simulation*, 14: 1377-1393. [10.1007/s12273-021-0765-z](https://doi.org/10.1007/s12273-021-0765-z).
- J-11. Ye, Yunyang, **Kathryn Hinkelman**, Jian Zhang, Wangda Zuo, and Gang Wang. 2019. "A Methodology to Create Prototypical Building Energy Models for Existing Buildings: A Case Study on U.S. Religious Worship Buildings." *Energy and Buildings*, 194: 351–365. [10.1016/j.enbuild.2019.04.037](https://doi.org/10.1016/j.enbuild.2019.04.037).
- J-12. Lu, Xing, **Kathryn Hinkelman**, Yangyang Fu, Jing Wang, Wangda Zuo, Qianqian Zhang, and Walid Saad. 2019. "An Open Source Modeling Framework for Interdependent Energy-Transportation-Communication Infrastructure in Smart and Connected Communities." *IEEE Access*, 7: 55458–76. [10.1109/ACCESS.2019.2913630](https://doi.org/10.1109/ACCESS.2019.2913630).
- J-13. **Van Lieshout, Kathryn G**, Joy G Anderson, Kevin B Shelburne, and Bradley S Davidson. 2014. "Intensity Rankings of Plyometric Exercises Using Joint Power Absorption." *Clinical Biomechanics*, 29: 918–22. [10.1016/j.clinbiomech.2014.06.015](https://doi.org/10.1016/j.clinbiomech.2014.06.015).

Peer-Reviewed Conference Papers

- C-1. (Accepted). Mensikova, Anastasija, Donna Rizzo, **Kathryn Hinkelman**. "Mapping the Landscape of Artificial Intelligence in Life Cycle Assessment Using Large Language Models", The 20th International Conference on Energy Sustainability (ES2026). Bellevue, Washington.
- C-2. Davari, Malihe, **Kathryn Hinkelman**, Jaume Fitó, Julien Ramousse. 2026. "Open-Source Modelica Models for the Optimal Design of Urban and Community Scale Multi-Energy Systems", *SimBuild 2026: From Models to Reality: Bridging Simulation and Operational Performance*, 12:193-204. Minneapolis, Minnesota. [10.26868/30680611.2026.1296](https://doi.org/10.26868/30680611.2026.1296).
- C-1. Flores Garcia, Juan Diego, **Kathryn Hinkelman**, Saranya Anbarasu, Margaret Jaynes, Wangda Zuo. 2025. "Modeling Resilient Multi-Energy Systems for Rural, Remote, and Disadvantaged Communities: A Review." *Building Simulation 2025: 19th Conference of IBPSA*, 19. Brisbane, Australia. [10.26868/30680611.2026.1296](https://doi.org/10.26868/30680611.2026.1296).
- C-2. Anbarasu, Saranya, Tanmay Ambadkar, Rosina Adhikari, **Kathryn Hinkelman**, Zhanwei He, Wangda Zuo, Ardeshir Moftakhar. 2024. "Optimizing Operational Costs in Combined Heat and Power Integrated District Heating Systems: A Reinforcement Learning Approach." *The 11th National Conference of IBPSA-USA (SimBuild)*, 649-660. Denver, Colorado. ([link](#))
- C-3. He, Zhanwei, Saranya Anbarasu, **Kathryn Hinkelman**, Jianjun Hu, Wangda Zuo, Ardeshir Moftakhar. 2024. "Computationally Efficient and Accurate Modeling of Combined Heat and Power Systems for District Energy Systems." *The 11th National Conference of IBPSA-USA (SimBuild)*, Denver, Colorado. ([link](#))
- C-4. **Hinkelman, Kathryn**, David Milner, Wangda Zuo. 2023. "Open-Source Models for Sand-Based Thermal Energy Storage in Heating Applications." *The 15th International Modelica Conference*, 627-632. Aachen, Germany. [10.3384/ecp204627](https://doi.org/10.3384/ecp204627).
- C-5. **Hinkelman, Kathryn**, Saranya Anbarasu, Wangda Zuo. 2023. "Ecological Network Analysis of Integrated Energy Systems with Modelica: A Novel Biomimetic Approach for Building Design and Operation." *Building Simulation Conference*, Shanghai, China. ([link](#))
- C-6. **Hinkelman, Kathryn**, Wangda Zuo, Jing Wang, Sen Huang, Michael Wetter. 2022. "Ecosystem-Level Biomimicry for the Built Environment: Adopting Systems Ecology Principles for the Control of Heterogeneous Energy Systems." *The 5th International Conference on Building Energy and Environment*. Montreal, Canada. [10.1007/978-981-19-9822-5_284](https://doi.org/10.1007/978-981-19-9822-5_284).

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- C-7. Anbarasu, Saranya, **Kathryn Hinkelman**, Wangda Zuo. 2022. “Tracing the Dependency of Water and Energy in Smart and Connected Communities through a Multi-Domain Modeling Framework.” *The 5th International Conference on Building Energy and Environment*. Montreal, Canada. [10.1007/978-981-19-9822-5_19](https://doi.org/10.1007/978-981-19-9822-5_19).
 - C-8. **Hinkelman, Kathryn**, Saranya Anbarasu, Michael Wetter, Antoine Gautier, Baptiste Ravache, Wangda Zuo. 2022. “Towards Open-Source Modelica Models for Steam-Based District Heating Systems.” *The 1st International workshop on Open Source Modelling and Simulation of Energy Systems*, 1-6. Aachen, Germany. [10.1109/OSMSES54027.2022.9769121](https://doi.org/10.1109/OSMSES54027.2022.9769121).
 - C-9. **Hinkelman, Kathryn**, Jing Wang, Chengliang Fan, Wangda Zuo, Antoine Gautier, Michael Wetter, Nicholas Long. 2021. “A Case Study on Condenser Water Supply Temperature Optimization with a District Cooling Plant.” *The 14th International Modelica Conference*, 587-595. Linköping, Sweden. [10.3384/ecp21181587](https://doi.org/10.3384/ecp21181587).
 - C-10. **Hinkelman, Kathryn**, Sen Huang, Jing Wang, Wangda Zuo. 2019. “Enhancing the Implementation of a First-order Equivalent Thermal Parameter Model to Enable Accurate and Robust Building Thermal Response Prediction.” *Building Simulation Conference*, 1859-1865. Rome, Italy. [10.26868/25222708.2019.210582](https://doi.org/10.26868/25222708.2019.210582).
 - C-11. Ye, Yunyang, **Kathryn Hinkelman**, Jian Zhang, Yulong Xie, Wangda Zuo. 2019. “A Methodology to Determine Energy Savings Impact of Building Energy Code Upgrades: A Case Study on Small Offices.” *Building Simulation Conference*, 3894-3901. Rome, Italy. [10.26868/25222708.2019.210692](https://doi.org/10.26868/25222708.2019.210692).
 - C-12. **Van Lieshout, Kathryn G**, Cindy Bayley, Sarah O Akinlabi, Lisa von Rabenau, and David Dornfeld. 2015. “Leveraging Life Cycle Assessment to Evaluate Environmental Impacts of Green Cleaning Products.” *Procedia CIRP*, 29:372–377. Sydney, Australia. [10.1016/j.procir.2015.02.063](https://doi.org/10.1016/j.procir.2015.02.063).

Posters † BEST POSTER AWARD

- P-1. Anastasija Mensikova, **Kathryn Hinkelman**, Donna Rizzo. “Mapping the Landscape of Artificial Intelligence in Life Cycle Assessment using Large Language Models”, UVM Student Research Conference, Burlington, VT, April 15, 2026.
- P-2. Malihe Davari, **Kathryn Hinkelman**, Jaume Fito, Julien Ramousse. “Open-Source Modelica Models for the Optimal Design of Urban and Community Scale Multi-Energy Systems”, UVM Student Research Conference, Burlington, VT, April 15, 2026.
- P-3. Margaret Jaynes, **Kathryn Hinkelman**. “Optimization of Open Loop Thermal Energy Networks: Assessing Lake Champlain as an Alternative Thermal Source”, UVM Student Research Conference, Burlington, VT, April 15, 2026.
- P-4. Nathan Kellison-Miller, **Kathryn Hinkelman**. “Environmental Payback of Wind Turbines Across the United States: A Combined LCA and Dynamic Energy Modeling Approach”, UVM Student Research Conference, Burlington, VT, April 15, 2026.
- P-5. Malihe Davari, **Kathryn Hinkelman**, Jaume Fito. “Optimal Design of Coupled District Energy and Microgrid Systems in France’s Bourget Du Lac District”, IEEE Power and Energy Society General Meeting, Austin, TX, July 27-31, 2025.
- P-6. Fitzwilliam Keenan-Koch, **Kathryn Hinkelman**. “Disentangling the Technosphere: Network Analysis of Life Cycle Assessment.” University of Vermont Student Research Conference, Burlington, VT, April 23, 2025.
- P-7. Juan Diego Flores Garcia, **Kathryn Hinkelman**, Jing Wang, Saranya Anbarasu, Margaret Jaynes, Wangda Zuo. “Modeling Resilient Multi-Energy Systems for Rural, Remote, and Disadvantaged Communities: A Review.” University of Vermont Student Research Conference, Burlington, VT, April 23, 2025.

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- P-8. **Hinkelman, Kathryn.** “BICEPS – Biomimetic Integrated Community Energy and Power Systems.” *U.S. Department of Energy Building Technologies Office (BTO) Peer Review*, Arlington, VA, April 24-28, 2023.
 - † P-9. **Hinkelman, Kathryn,** Wangda Zuo. “Ecological Network Analysis for Architectural Engineering: How might building energy systems learn from nature?” *AEI Conference*, Denver, CO, April 12-14, 2023.
 - P-10. **Hinkelman, Kathryn,** Xing Lu, Wangda Zuo, Yangyang Fu, Jing Wang, Yingchen Zhang. “Multi-domain Modeling Framework for Future Smart and Connected Communities.” *21st Century Energy Transition Symposium*, Denver, CO, April 1-2, 2019.
 - P-11. **Van Lieshout, Kathryn G,** Owen RW Dennis, Joy G Anderson, Kevin B Shelburne, Bradley S Davidson. “Intensity rankings of plyometric exercises using joint power absorption.” *American College of Sports Medicine Annual Meeting*, Indianapolis, IN, May 28-June 1, 2013.

Technical Reports

- R-1. **Hinkelman, Kathryn.** 2023. “Modelica Modeling and Ecosystem Biomimicry of District Energy Systems.” Doctoral Dissertation. *Pennsylvania State University*. etda.libraries.psu.edu/catalog/27446kgh5244.
- R-2. **Van Lieshout, Kathryn G.** 2015. “Environmental impact and indoor environmental quality assessment of Pinoleville Pomo Nation demonstration home: An implementation of life cycle assessment and culturally-inspired design.” Master’s Thesis. *University of California, Berkeley*. [10.13140/RG.2.2.14890.90564](https://escholarship.org/uc/item/10.13140/RG.2.2.14890.90564).
- R-3. Final Report (co-authored with Alice Agogino (PI) and student team). 2015. “Advanced UX Development Based on Innovative Technology: Integrating UX Design with the Internet of Things.” Samsung Electronics Co., Ltd. DMC R&D Center.
- R-4. Agogino, Alice (PI). **Kathryn Van Lieshout,** Chandrayee Basu, Kyunam Kim, Julien Caubel, Elizabeth Cheng, Aparna Dhinakaran. 2014. “Model Predictive Smart Lighting Commissioning System for Emerging Demand Management.” Energy Innovations Small Grant Program: Final Report. California Energy Commission.

Presentation Sessions & Invited Talks

- T-1. “Loops, Links, and Low Exergy: Rethinking Energy Design Through Nature’s Lens.” *GundxChange Seminar*, Gund Institute for Environment, University of Vermont, October 24, 2025.
- T-2. “Building Adaptative Knots and Networks: Toolchains for Multi-Energy Systems.” *Invited Workshop Presentation*, UVM-Dartmouth Impact Discovery Workshop, University of Vermont, August 11, 2025.
- T-3. “Emerging Modeling Methods for Sustainable and Resilient Community Energy Systems.” *Invited Research Seminar*, Center for Resilient Energy and & Autonomous Technologies in Engineering, University of Vermont, November 22, 2024.
- T-4. “Modeling of Smart, Sustainable, and Connected Communities.” *Invited Research Seminar*, Department of Civil and Environmental Engineering, University of Vermont, October 18, 2024.
- T-5. “Ecological Network Analysis of Integrated Energy Systems with Modelica: A Novel Biomimetic Approach for Building Design and Operation.” *The 18th IBPSA International Conference and Exhibition (Building Simulation 2023)*, Shanghai, China, Virtual, September 5, 2023.
- T-6. “Equation-Based Modeling and Ecosystem Biomimicry of Integrated Building Energy Systems.” *Invited Research Seminar*, Department of Civil, Architectural and Environmental Engineering, Drexel University, May 26, 2023.

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- T-7. “BICEPS – Biomimetic Integrated Community Energy and Power Systems.” *U.S. Department of Energy Building Technologies Office (BTO) Peer Review*, Arlington, VA, April 24-28, 2023.
 - T-8. “Advancements in Multidomain Modeling and System-Level Biomimicry for the Comprehensive Design of District Energy Systems.” *Invited Research Seminar*, Department of Systems Engineering, Colorado State University, February 2, 2023.
 - T-9. “A Fast and Accurate Modeling Approach for Water and Steam Thermodynamics with Practical Applications in District Heating System Simulation.” *The 2022 Building Performance Analysis Conference and SimBuild*, Seminar 5: Open Source Modeling for District Energy Systems, Chicago, IL, September 14, 2022.
 - T-10. “Ecosystem-Level Biomimicry for the Built Environment: Adopting Systems Ecology Principles for the Control of Heterogeneous Energy Systems.” *The 5th International Conference on Building Energy and Environment*, Montreal, Canada, July 28, 2022.
 - T-11. “Virtual Testbed for Optimized Planning of Smart, Sustainable, and Connected Communities.” *The 2022 IEEE Power & Energy Society General Meeting*, Denver, CO, July 19, 2022.
 - T-12. “From Furnaces to Forests: Innovations in Modeling and Simulation for the Transition of Legacy District Energy Systems to Integrated Biomimetic Designs.” *Invited Research Seminar*, Dept. of Mechanical Engineering & Mechanics, Drexel University, Virtual, December 20, 2021.
 - T-13. “A Case Study on Condenser Water Supply Temperature Optimization with a District Cooling Plant.” *The 14th International Modelica Conference*, Virtual, September 23, 2021.
 - T-14. “Modeling and Simulation of District Cooling Systems with Modelica.” *IBPSA-USA Denver Chapter: Student Presentations*, Virtual, May 20, 2021.
 - T-15. “A Modeling Framework to Evaluate Energy, Transportation, and Communication Interdependence in Smart and Connected Communities.” *The American Modelica Conference*, Virtual, September 22-24, 2020.
 - T-16. “A Modeling Framework to Evaluate Energy, Transportation, and Communication Interdependence in Smart and Connected Communities.” *IBPSA-USA Denver Chapter: Student Presentations*, Golden, CO, November 21, 2019.
 - T-17. “Enhancing the Implementation of a First-order Equivalent Thermal Parameter Model to Enable Accurate and Robust Building Thermal Response Prediction.” *Building Simulation Conference*. Rome, Italy, September 2-4, 2019.
 - T-18. “A Modeling Framework to Evaluate Energy, Transportation, and Communication Interdependence in Smart and Connected Communities.” *Intelligent Building Operations Workshop*, Boulder, CO, August 7-9, 2019.
 - T-19. “Leveraging life cycle assessment to evaluate environmental impacts of green cleaning products.” *22nd CIRP Conference on Life Cycle Engineering*, Sydney, Australia, April 7-9, 2015.

**Research
Funding**

Total external funding (neglecting cost share) on grants: **\$ 1,698,756**
My Portion: **\$ 620,907**

Design and Planning of Multi-Energy System to Support Transitions in Arctic Communities

Sponsor: Gund Institute for Environment, Gund Impact Award

Total Award: \$299,355.98 (My Portion: \$13,173.77)

Period: 09/2026 – 08/2029

My role: Co-PI

Investigators: Mads Almassalkhi (PI), Jayashree Rajaram Yadav (Co-PI), Bindu Panikkar (Co-PI)

Collaborative Research: CPS: Medium: Honeybee-Inspired Coordination & Control of Distributed Energy Resources for Resilient Electric Grids at the Distribution Level, ECCS-2433427

Sponsor: U.S. National Science Foundation; Electrical, Communications and Cyber Systems (ECCS)
Total Award: \$1,000,000 (My Portion: \$208,333)

Period: 10/2025 – 09/2028

My role: PI

Investigators: Wangda Zuo (PI, Penn State), Kyri Baker (PI, CU Boulder), Orit Peleg (Co-PI, CU Boulder), Di Wu (Senior Personnel, PNNL), Raymond Kaiser (Senior Personnel, eVoke Systems)

ERI: Towards Dynamic Life Cycle Assessment of Renewable Energy Hub Systems, CBET-2501735

Sponsor: U.S. National Science Foundation; Chemical, Bioengineering, Environmental, and Transport Systems (CBET)

Total Award: \$200,000 (Sole-PI)

Period: 06/2025 – 05/2027

Improving circular design methods and metrics from a life cycle perspective to support NASA's long-term space exploring systems

Sponsor: Vermont Space Grant Consortium (VTSGC)

Total Award: \$32,400 (Sole-PI)

NASA Collaborators: Tra-My Justine Richardson & Michael Flynn, NASA Ames Research Center

Period: 06/2025 – 05/2027

Monitoring Vermont Building and Energy Systems for Ecological and Human Health Impacts

Sponsor: Office of the Vice President for Research; University of Vermont; EXPRESS Grant Program

Total Award: \$3,000 (Sole PI)

Period: 12/2024 – 12/2025

Biomimetic Integrated Community Energy and Power System (BICEPS)

Sponsor: U.S. Department of Energy; Building Technologies Office (BTO); IBUILD Fellowship

Total Award: \$164,000 (Individual fellowship recipient)

Period: 08/2021 – 07/2023

**Research
Advising**

PhD Students

Nathaniel Adams, Ph.D. in Civil and Environmental Engineering

Fall 2026 –

Anastasija Mensikova, Ph.D. in Civil and Environmental Engineering

Fall 2025 –

Malihe Davari, Ph.D. in Civil and Environmental Engineering

Spr 2025 –

Master's Students

Jessica Donlevie, M.S. in Civil and Environmental Engineering

Fall 2026 –

Chris Leppla, M.S. in Complex Systems and Data Science

Fall 2024 –

Fitzwilliam Keenan-Koch, M.S. in Complex Systems and Data Science

Fall 24 – Spr 25

Undergraduate Students

Charli Plut, B.S. in Environmental Engineering

Fall 2026 –

Daisy Thralow, B.S. in Mechanical Engineering

Fall 2026 –

Gavriel Levis, B.S. in Mechanical Engineering

Fall 2025 –

Jessica Donlevie, B.S. in Environmental Engineering

Fall 2025 – Spr 2026

Nathan Kellison-Miller, B.S. in Civil Engineering

Fall 2025 – Spr 2026

Margaret Jaynes, B.S. in Environmental Engineering (Honors)

Fall 2024 – Spr 2026

Ethan Alexander Wolf, B.S. in Environmental Engineering (Barrett Scholar)

Sum 2025

Emmet Kimberly, B.S. in Environmental Engineering

Fall 2024

Elliott Austin, B.S. in Environmental Engineering

Fall 2024

**Thesis
Committees**

PhD Students

1. Muhammad Hamza Ali (TBD), Electrical Eng., Advisor: Amritanshu Pandey, My Role: Member
2. Alireza Lotfabadi (TBD), Mechanical Eng., Advisor: Jeffrey Marshall, My Role: Member

Master's Students

3. Vee Kalkunte (TBD), Electrical Eng., Advisor: Mads Almassalkhi, My Role: Member
4. Megan Bush (TBD), Architectural Eng., Penn State, Advisor: Gregory Pavlak, My Role: Member
5. Siavash Kasaeipour (2026), Mechanical Eng., Advisor: Jeffrey Marshall, My Role: Member
6. Jaiden Capozzi (2026), Natural Resources (AMP), Advisor: Bindu Panikkar, My Role: Chair
7. Joey Del Toro (2025), Mechanical Eng., Advisor: Yves Dubief, My Role: Chair

Teaching

Instructor

CEE 2130: [System Focused Design Engineering](#), University of Vermont Spr 2026
 CEE/CSYS 6990: [Energy System Entanglement](#), University of Vermont Fall 2025
 CEE 2130: [System Focused Design Engineering](#), University of Vermont Spr 2025

Guest Lecturer

CEE 2130: [System Focused Design Engineering](#), University of Vermont Spr 2026
 ME 4020/EE4200: [Capstone Design II](#), University of Vermont Fall 2025
 EE 3315: [Electric Energy Systems](#), University of Vermont Fall 2025
 AE 597: [Advanced Modeling & Simulation for Building & Community Energy Systems](#), Pennsylvania State University Fall 2022-2024
 AREN 4317: [Architectural Engineering Design](#), University of Colorado Boulder Fall 2019

Grader

AREN 4890: [Sustainable Building Design](#), University of Colorado Boulder Fall 2019-2021

Teaching Assistant

AREN 4317: [Architectural Engineering Design](#), University of Colorado Boulder Spr 2019
 AREN 3540: [Illumination I](#), University of Colorado Boulder Fall 2018

Graduate Student Instructor, University of California, Berkeley

ME 110: [Introduction to New Product Development](#) Spr 2014
 ME 107: [Mechanical Engineering Laboratory](#) Fall 2013

Academic Tutor, Athletics and Recreation, University of Denver

- Courses: [Differential Equations](#), [Calculus](#), and [Engineering Concepts](#)
 - Taught class material that was missed due to athletic travel
- 2011 – 2012

Honors and Awards

Young Engineer of the Year, Vermont Professional Society of Engineers 2026
 IBPSA-World Godfried Augenbroe Award 2025
Recognizes a recent outstanding PhD thesis on the topic of building performance simulation, awarded biannually.
 Postdoctoral Scholar Award, Pennsylvania State University 2024
 SimBuild 2024 Best Reviewer Award 2024
 IBUILD Graduate Research Fellowship, **\$164,000** total, 2 years 2021 – 2023
U.S. Department of Energy, Energy Efficiency and Renewable Energy, Building Technologies Office, Managed by Oak Ridge National Laboratory
 Borda Graduate Scholarship in Honor of Gifford H. Albright, PSU 2022
 Gordon D. Kissinger Graduate Research Fellowship, PSU 2022
 Harvey and Geraldine Brush Graduate Fellowship in Engineering, PSU 2022
 Marlene and Joseph Borda Architectural Engineering Graduate Fellowship, PSU 2022
 P.E.O. Scholar Award, **\$20,000** international merit-based award 2021
 International Building Performance Simulation Assoc. (IBPSA) Project 1 Scholarship 2019
 The Link Foundation Energy Fellowship Program Honorable Mention 2019
 Colorado Engineering Council Silver Medal & Certificate of Merit 2013
 Pioneer Award 2013
*"The **highest honor** given to undergraduate students" at the U. of Denver (DU)*
 Mechanical Engineering Departmental Distinction, DU 2013
 Taylor Achievement Award, Ortho Transmission, LLC 2010 – 2013
 Hornbeck Scholar (7 quarters), DU 2010 – 2013

	Dean's List (8 quarters), DU	2009 – 2013
	A University of Denver Scholar-Athlete of the Year (4 years)	2012
	NSCAA Scholar All-West Region Team	2012
	Second Team All-WAC Selection	2011
	Academic All-American First Team, Division I Women's Soccer	2011
	Preseason All-Sun Belt Conference Team	2009 – 2011
	Sun Belt Conference Commissioner's List (all 3 seasons)	2019
	SBC All-Conference First Team	2009
	DU Invitational All-Tournament Team	2009
	CS360's Primetime Performers of the Week (9/15)	
Student Awards	Nathaniel Adams, University of Vermont Presidential Doctoral Fellowship	2026
	Jessica Donlevie, Vermont Space Grant Consortium Graduate Fellowship	2026
	Gavriel Levis, ASHRAE Award, Champlain Valley Chapter	2026
	Ethan Alexander Wolf, Barrett Foundation Summer Scholarship	2025
Professional Associations	ASHRAE: American Society of Heating, Refrigerating & Air-Conditioning Engineers	2017 – Present
	IBPSA: International Building Performance Simulation Association	2019 – Present
	ASEE: American Society of Engineering Education	2022 – Present
Service & Leadership	Professional Service	
	ASME Solar Energy Division Buildings TC	
	- Chair	Dec 2025 – Present
	Vermont Energy Action Network (EAN)	
	- Member	Mar 2025 – Present
	ASHRAE TC 4.7 Energy Calculations	
	- Corresponding Member	Jul 2024 – Present
	- Provisional Corresponding Member	2023 – 2024
	ASHRAE TC 6.2 District Energy	
	- Research Subcommittee Co-Chair	Jan 2026 – Present
	- Webmaster	Jul 2025 – Present
	- Provisional Corresponding Member	Jul 2023 – Present
	ASHRAE TC 6.4 Combined Heat and Power	
	- Secretary	Jul 2024 – Jun 2026
	- Corresponding Member	2021 – 2024
	- Provisional Corresponding Member	2020 – 2021
	IBPSA-USA Community and Practice Advisory Committee	
	- Member	Dec 2024 – Present
	University Service	
	AI Fellow, Department of Civil and Environmental Engineering	May 2026 – Present
	Conference Chair	
	Intelligent Building Operations Workshop, University of Colorado Boulder	Aug 2019
	- Session chair for Modeling and Assessment Tools	
	Panel Reviewer , National Science Foundation (NSF)	2026
	Publication Reviewer	
	Journals	
	- ASME Journal of Engineering for Sustainable Buildings and Cities	
	- Bioinspiration & Biomimetics	
	- Building Simulation, An International Journal	

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- Electric Power Systems Research
 - Energies
 - IEEE Access
 - IEEE Transactions on Smart Grid
 - Journal of Architectural Engineering
 - Journal of Building Performance Simulation
 - Journal of Energy Research
 - Processes
 - Reliability Engineering & System Safety
 - Resources, Conservation and Recycling
 - Science and Technology for the Built Environment
 - Sustainable Cities and Society

Conference Proceedings

- ASHRAE Winter Conference
- ASME Energy Sustainability (ES)
- ASME Manufacturing Science & Engineering Conference (MSEC)
- Building Simulation
- International Conference on Building Energy and Environment (COBEE)
- IBPSA-USA SimBuild

Collegiate Athlete

Division I Women's Soccer Team, University of Denver

Aug 2009 – Nov
2012

- Balanced intensive athletic duties of regular practice, games, and travel with a difficult course load.
- Regular starter and leader to the team, finishing 22nd in the nation with a Sweet Sixteen NCAA appearance in senior season.