



Graduate Student Positions in Thermal Systems Area (Fall 2023)
PhD applicants preferred; MS applicants possible depending on qualifications.

Position #1: Three-Fluid Heat Exchanger and Thermal Energy Storage

This position is for you if you are interested in thermal energy storage, which is an enabling technology for a larger amount of renewable electricity on the grid. Depending on project needs your focus will be on experimental, model development, or supervisory controls development topics. In general, my goal is to have my PhD students be involved in both, simulation, and experimental work to increase their competitiveness post-graduation. Initially you will likely be funded through a combination of research and teaching funds to aide you in adjusting to your research topic. The goal is full RA funding once you are ready to produce the scholastic output needed for post-graduation success.

Preferred Qualifications

1. Topical fit – ideal candidates have experience in several of the below
 - a. Physics based model development experience at the HVAC&R component and/or system level
 - b. Data driven model development
 - c. Model profiling and speedup
 - d. Experimental work with thermal systems
 - e. Building simulation using Energy+ or Modelica is a plus
2. Strong academic record
 - a. Publications in relevant conferences and journals
 - b. GPA that is competitive based on the reputation of your home institution
3. Software fit
 - a. Python: Strong expertise in object-oriented programming including developing classes and using standard third-party classes (pandas, matplotlib, uncertainties, SciPy, ...)
 - b. LabVIEW: Experienced in building Visual Instruments for data acquisition and controls
 - c. LaTeX or MS Word: Publication grade document development
4. Soft skills to support multi-student projects
 - a. Self-motivated with a solution mindset
 - b. Verbal and written communication skills in English language
 - c. Organizational skills, including project scheduling and data management

Contact Information and Applications

For questions and inquiries please contact Dr. Bach at cbach@okstate.edu and include which position you are interested in.

The deadline for Summer/Fall 2023 is by March 1st (earlier recommended for international students). See <https://ceat.okstate.edu/mae/students/graduate.html> for full application requirements. If you are interested in this position, mention [Dr. Bach](#) in your Statement of Purpose.



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Position #2: Heat Pump Component and System Level Modelling and Controls

This position is for you if you are interested in air-source heat pumps, an enabling technology for reducing the need for fuel oil and gas furnaces, reducing carbon emissions. Depending on project needs your focus will be on experimental, model development, or supervisory – including defrost – controls development topics. My goal is to have my PhD students be involved in both, simulation, and experimental work to increase their competitiveness post-graduation. Initially you will likely be funded through a combination of research and teaching funds to aide you in adjusting to your research topic. The goal is full RA funding once you are ready to produce the scholastic output needed for post-graduation success.

Preferred Qualifications

1. Topical fit – ideal candidates have experience in several of the below
 - a. Physics based model development experience at the HVAC&R component and/or system level
 - b. Data driven model development
 - c. Model profiling and speedup
 - d. Experimental work with thermal systems
 - e. Data analysis skills, ideally using a fully scripted approach
2. Strong academic record
 - a. Publications in relevant conferences and journals
 - b. GPA that is competitive based on the reputation of your home institution
3. Software fit
 - a. Python: Strong expertise in object-oriented programming including developing classes and using standard third-party classes (pandas, matplotlib, uncertainties, SciPy, ...)
 - b. LabVIEW: Experienced in building Visual Instruments for data acquisition and controls
 - c. LaTeX or MS Word: Publication grade document development
4. Soft skills to support multi-student projects
 - a. Self-motivated with a solution mindset
 - b. Verbal and written communication skills in English language
 - c. Organizational skills, including project scheduling and data management

Contact Information and Applications

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