UNDERGRADUATE SUMMER RESEARCH PROGRAM PROPOSAL

- Project title

  Exploring Hydro Energy's Thermal Footprint through CFD Modeling

- Faculty advisor

  Chris Qin, Assistant Professor of Mechanical Engineering

- Project description

  This project investigates how hydro energy devices influence river temperatures and aquatic habitats, using computational fluid dynamics (CFD) tools such as ANSYS Fluent or CE-QUAL-W2. The selected undergraduate will assist Dr. Qin and his research team with data collection, model setup, and preliminary analyses. This hands-on experience will strengthen the student's CV and develop valuable research skills in a real-world sustainability context.

- Deliverables
  - A concise written report detailing simulation methods and findings
  - Presentation materials (e.g., poster or slides) for WSU internal research showcase

- Time requirements
  - A total of 240 hours with a hourly rate of $16.66
  - Flexible scheduling between May 15 and August 5

- Constraints
  - Tasks may be completed remotely if the software permits

- Required skills and knowledge
  - Basic familiarity with numerical analysis (Python or MATLAB)
  - Introductory knowledge of fluid mechanics, heat transfer, and thermodynamics

- Preferred qualifications
  - Experience with CFD software (e.g., ANSYS Fluent, CE-QUAL-W2)
  - Interest in sustainable energy practices and ecosystem conservation