Research Assistant IV

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Grant & Trust Administrative & Technical

Research Assistant IV

School of Engineering

Temporary full-time from May 2022 to May 2024
Hiring #: 2022-0327

Please read the Application Instructions [1] before applying

Reporting to Dr. Lubitz, Associate Professor, the Research Assistant will focus on software development and programming. This position is part of a multi-year externally funded research project investigating Archimedes screw pumps. Screw pumps have been used for many years to pump large volumes of water for irrigation, de-watering low-lying areas and wastewater treatment. Screw pump design is mostly empirical, and modern design tools that allow application of modern, cost-saving optimization models for site-specific design are needed. The overall goal of this project is development of a comprehensive computational model to accurately predict the performance of Archimedes screw pumps. This position will involve translating knowledge from the literature, from the research group's past decade of experience investigating Archimedes screw generators and from new research results, into mathematical relationships and models, then into code integrating these into the computational model. The incumbent will also test and validate the models and integrate them into a comprehensive practical computational pump design tool being developed by the project team.

This position will primarily involve working on the computational model, including planning, coding, integrating and testing sub-models. The incumbent will work as part of a team on a large, complex modeling and design tool that includes user interfaces, generation of output documents, multiple interacting code modules and interfaces to databases. Additionally, the incumbent will support laboratory experiments measuring the performance of laboratory-scale (1.2 m long) Archimedes screw pumps to provide insights and validation data to support the model development. The physical laboratory equipment is already in place and has been used for prior experiments, however, reconfiguring of sensors and data collection software will be part of the experience. This position may also involve supporting the research team in summer field work collecting data at full-scale Archimedes screw pumps in southern Ontario. The incumbent will supervise and support undergraduate co-op students assisting with the project. This position will be located at the University of Guelph main campus, in the School of Engineering. The amount of in-person in Guelph vs. virtual work will depend on Covid-related conditions.

The ideal applicant will be a detail-oriented self-starter able to work both independently and as a member of a team. The majority of the computational model will be coded in Python. We also use MATLAB, Git, the Django web framework, Linux servers and Docker, as well as Outlook, Slack and Trello for project management: experience with any of these would be an asset. Experience with sensors and data logging, or working in a laboratory setting, would also be useful, but is not required. The ideal applicant would be interested in learning about Archimedes screws, developing computational models to support optimized design of real-world systems, and working as an integrated member of a team on a large-scale research and software development project.

Requirements for the position include:

- University degree in relevant discipline, with a minimum of one (1) year related experience. A combination of relevant education and experience may be considered.
- Prior software development experience.
- Prior significant experience developing and coding in Python or similar software and related languages.
- Experience integrating databases into software applications, particularly Django.
- Familiarity with implementing and operating software on Windows and Linux servers.
Familiarity or experience with Git, Docker or similar software and virtual collaboration tools.
Ability to work independently and as part of a team, both virtually and in-person.
Excellent organizational and planning skills.

Classification Grant/ Trust fund position, Band D

GTAT (Grant & Trust Administrative and Technical) Salary Grid [2]

At the University of Guelph, fostering a culture of inclusion [3] is an institutional imperative. The University invites and encourages applications from all qualified individuals, including from groups that are traditionally underrepresented in employment, who may contribute to further diversification of our Institution.

Posting Date: 2022 05 09
Closing Date: 2022 05 24

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[1] https://www.uoguelph.ca/hr/careers-guelph/how-apply