

University of Toronto

Faculty of Applied Science & Engineering

Posting: July 21, 2023

Area of Research: Dr. Olechowski and her research group Ready Lab (<https://readylab.mie.utoronto.ca/>) in the Mechanical & Industrial Engineering Department and Dr. Zhou and her research group FORCOLAB (<https://shuiblue.github.io/forcolab-uoft/>) in the Department of Electrical & Computer Engineering are hiring a postdoctoral fellow to strengthen a collaboration towards improving modern computer-aided design process with insight from software development. Computer-Aided Design (CAD) tools are currently undergoing a transformation from solitary on-prem architecture to collaborative and cloud-based; this change is happening at a pace faster than is practical for industry to keep up. Our research responds by evaluating, improving, and creating methods for hardware product design and development. We take an interdisciplinary approach which combines engineering design knowledge with insight from software engineering, psychology, education, and management science. Current projects focus on collaborative and automated computer-aided design tools, with an emphasis on leveraging both qualitative and quantitative analysis on the historical data of user interaction with existing CAD tools. From this analysis we aim to derive feedback to drive improvements on working efficiency, summarize and propose best practices on collaborative CAD design, and propose benchmarks to evaluate the efficiency of user design workflow.

Recent outputs of the collaboration include two papers upcoming at the Computer-Supported Cooperative Work (CSCW) conference:

K. Cheng, P. Cuvin, A. Olechowski, and S. Zhou. User Perspectives on Branching in Computer-Aided Design. The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW). 2023. Access [here](#).

K. Cheng, S. Zhou. , and A. Olechowski. In the age of collaboration, the Computer-Aided Design ecosystem is behind: Evidence from an interview study of distributed CAD practice. The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW). 2023. Access [here](#).

Description of Duties: Dr. Olechowski and Dr. Zhou seek an exceptional Postdoctoral Fellow (PDF) to contribute to the collaboration's projects, including a major focus on the research of modern, collaborative computer-aided design (CAD) tools. The PDF will contribute to:

- Statistical analysis of large-scale data set and dissemination of data from past and future work
- Co-authoring high-impact conference and journal publications
- Writing proposals and reports for funding
- Supervising undergraduate and graduate student researchers

Required Qualifications: Candidates must have a PhD in mechanical engineering, computer engineering or related field. Qualified candidates will have excellent communication skills, strong independent research skills (specifically one or more of human-subject experimental design and execution, and data

analysis), and experience collaborating with industry partners. Demonstrated productivity as evidenced by published peer-reviewed journal articles and scientific conference presentations is required. The applicant will be expected to work independently, provide leadership to an interdisciplinary team of graduate students, and produce publishable results.

Candidates should have relevant expertise in one or more of the fields of design theory and methods, computer-supported collaborative work, design automation, computer-aided design, or related field.

Ideal candidates are leaders that excel at motivating and managing small teams; have excellent organizational and time-management skills; and have superb interpersonal skills, including the capacity to offer thoughtful and clear technical guidance on research projects.

Expected start date: As soon as possible.

Schedule: 100%

Appointment Type: Term (12 months) with a possible renewal

Instructions to Apply: Applications should include a CV and a statement of research interests. Qualified candidates may be asked to submit at least two letters of reference, if they are strongly being considered for the position.

Applications will be considered on a rolling basis and should be sent to Professor Alison Olechowski (olechowski@mie.utoronto.ca) and Professor Shurui Zhou (shuruiz@ece.utoronto.ca). Please use the subject line "2023 PDF Application" to reference this opportunity. Evaluation of candidates will begin immediately, and continue until filled.

The normal hours of work are 40 hours per week for a full time Postdoctoral Fellow (pro-rated for those holding a partial appointment) recognising that the needs of the employee's research and training and the needs of the supervisor's research program may require flexibility in the performance of the employee's duties and hours of work.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement. This job is posted in accordance with the CUPE 3902 Unit 5 Collective Agreement.

Profs. Olechowski and Zhou and the University of Toronto are strongly committed to diversity within our community and especially welcomes applications from racialized persons/ persons of colour, women, indigenous/Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.