

## Research and Design Summer Projects at the University of Calgary's Interactions Lab

Prof. Wesley Willett and Prof. Sheelagh Carpendale are looking for excellent and motivated undergraduate or graduate students who wish to work on exciting research and design projects in Spring and Summer 2017 in the areas of information visualization, design and human-computer interaction.

We have two sets of summer projects available: (1) research projects and (2) design projects. These summer projects are conducted within the framework of an ongoing research project with the National Energy Board (NEB) of Canada in designing information visualizations to share information about topics such as energy data, pipeline safety, and energy infrastructure. The overall goal is to meaningfully engage Canadians and support an informed energy dialogue using interactive visualizations. The [Energy Futures visualization](#) was an initial pilot for this project.

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### EXPLORING CANADA'S ENERGY FUTURE

Energy is important to Canada. It heats our homes, fuels our vehicles, and is a key aspect of Canada's economy.

Based on data from our Energy Futures reports, this interactive tool allows you to explore energy production and consumption trends and forecast them into the future. You can explore the data from the most recent report, or refer to previous reports.

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**EXPLORE BY REGION** | **EXPLORE BY SECTOR** | **EXPLORE ELECTRICITY GENERATION** | **EXPLORE SCENARIOS**

You will work closely together with the research and design teams and the stakeholders in the Interactions Lab (Math Sciences 680). All projects require the ability to think outside the box, be creative and work well in a team.

## (1) Research Projects

Possible summer research project topics include, but are not limited to:

- Create/design/prototype interactive visualizations of subsets of NEB data. This requires good to excellent programming skills, and it is an advantage to also have experience with visualization toolkits (e.g., d3.js).
- Visualize details on energy sources by sector for the NEB's Energy Futures report.
- Visualize infrastructure mapping data (e.g., pipelines and above-ground infrastructure such as pump stations)
- Scripting and data wrangling
- Assist with qualitative studies (interviewing stakeholders, transcribing and analyzing data)
- Develop a prototype tool for spatially analyzing qualitative data from studies with stakeholders on large displays
- Research on adapting existing web-based visualizations to smartphones and other mobile devices and extracting ways to develop complex but mobile-friendly visualizations
- Visualize energy and pipeline news stories concerning the NEB from print archives throughout the years (1950 and onwards)
- Visualize management processes concerning pipeline incidents. This will clearly communicate to the public how incidents are handled by the NEB
- Work with world-leading experts on colour to conduct research on the use of colour in visualizations (e.g., objective use of colour, supporting people with color blindness)

Please note that summer research students are not responsible for all topics listed above. Final projects will be clarified through discussions with Drs Willett and Carpendale and selected students.

## (2) Design Projects

We are also looking for two students to join our visual design team for the summer. Working collaboratively with the lead designer and the rest of the team, your design challenges will be to create and iterate on visualization designs that present data from the National Energy board in an effective and unbiased way. Projects will vary and be related to topics listed above.

Successful candidates should demonstrate the ability to work effectively in a team environment, be creative and be able to work with constructive criticism. Experience with Adobe Illustrator and sketching and drawing by hand are required. Experience with data visualization toolkits is an advantage but not necessary.

Interested students should mail project coordinator Claudia Maurer (maurerc(at)ucalgary.ca) and provide the following information:

- \* **A Transcript** (informal is fine)
- \* **A current resume or CV**
- \* **A note describing your interest in the position**
- \* **Any other info** (portfolio, etc.) that you'd like to share
- \* **The name of someone we can ask for a reference**  
(for example, a prof you've taken a class and who knows you well)