

# **Environmental implications of connected and autonomous vehicles and shared mobility**

MECH493 Project Proposal

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The automotive and transportation sectors are on the cusp of a major change. Connected and automated vehicles (CAVs) are likely to play a major role in transforming Canada's transportation system in the coming years. Vehicles will no longer be driven entirely by people, and individual ownership may become a relic of the past. Early versions of CAVs are already on public roads, and it is widely expected that many more will be in the very near future.

Connected and automated vehicles have the potential to enhance transportation safety, improve mobility choices, reduce emissions, lower costs for users, and create new social and economic opportunities for Canadians. At the same time, in addition to resulting in job losses, they are likely to cause significant disruption to the manufacturing and transportation industries and raise important cybersecurity and privacy concerns.

In light of the current trends affecting the evolution of connected and automated vehicle technologies and shared mobility, it is important to understand what economic, social, and environmental impacts, opportunities, and challenges these vehicles present for Canadian industry, governments, and Canadians more broadly.

**Specifically, the MECH 493 student will conduct research (including primary research involving low-cost sensor data in Vancouver and simulations from published data) on the environmental impacts of CAVs.**

Prof. Zimmerman is currently on an expert panel convened by the Council of Canadian Academies to help answer this question. The MECH 493 student will support her research for this panel, and as such, the research findings will remain confidential until the report is published in 2020. It is expected that this research will also provide the basis for a peer-reviewed scientific publication.

More details about the panel can be found here: <https://cca-reports.ca/reports/connected-and-automated-vehicles-and-shared-mobility/>