UBC Sustainability Scholars Program 2019

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing organizational sustainability goals.

For more information about the Sustainability Scholars Program and to apply to work on this project, please visit the Student Opportunities page.

Please review the application guide (PDF) before applying.

Applications close **midnight Monday February 25, 2019**.

Research project title
Using Blockchain to enable a Sustainable Sharing Economy

Sustainability Goal or Operations Plan objective
Conduct research reviewing blockchain technology to increase the understanding of its applicability to support facilitating data sharing and growth of for share-use mobility services in BC.

Near-term goal: Understand what blockchain technology is and how it can be used by transportation authorities to share data, facilitate payment and plan for shared-use mobility services.

Outline scope of project and why it is of value to your organization. Describe how and when the Scholar's work will be actionable.

- Shared use mobility services, such as carsharing, ridehailing and bikesharing, have been shown to reduce people's reliance on single-occupancy vehicles, increase the uses of sustainable transportation modes like transit, and help create inclusive, diverse, active, healthy communities.
- TransLink is exploring how these services can be aggregated through a single mobile app product to facilitate a seamless trip planner and payment experience sustainable choices easy and seamless across and between all modes (also known as Mobility-as-a-Service).
- To achieve this, TransLink is interested in exploring how data between digital platforms that book at pay for shared-use mobility services can be seamlessly and securely shared with TransLink as an intermediary aggregator through secure data sharing protocols. Specifically, TransLink is interested in how to use peer-to-peer blockchain technology to facilitate this sharing and assist with efficient information flows between government and mobility services, reducing the amount of intermediaries, saving time, and being less susceptible to errors and data abuse.
- A high-level scan of blockchain technology will give TransLink valuable insights towards how this technology can ensure quality control over all sharing economy enterprises and mobility services, creating secure, reliable and trusted digital platform.
- A historical scan of blockchain technology, and current deployments of the technology is a good first step to identify how this technology can be adopted and used. This scan should include, but not be limited to, how blockchain technology works, how is it used, and what problems can it can solve. Specifically, TransLink is interested in understanding details of:

    - The differences between cryptocurrency and blockchain technology, a distributed ledger, data block hashs, genesis blocks, proof-of-work calculation mechanisms, and distributed peer-to-peer networks consensus.
    - how smart contracts can be applied to within a blockhain, contract immutability and distribution validity, how automated non-interactive Zero Knowledge Proofing or Succinct Non-interactive Arguments of Knowledge to assist with disaggregating aggregate private user information.
- Based on the scan, identify a recommended roadmap for TransLink to consider using blockchain technology, including what major components and future opportunities exist to:
    - Integrate possible components of a Mobility Data Specification for shared use services and Mobility-as-a-Service payment systems.
    - Facilitate cross application user credit using an account-based user passport/key with a proprietary credit rating algorithm to effectively record user behavior (purchases, travel movements, mode choice, etc)
    - Support an incentivized token ecosystem can increase participation and engagement of both users and enterprises/mobility services, including mobility pricing incentives, discounts and loyalty rewards.

Deliverables

- A final report, containing scan summary and roadmap framework proposal for using blockchain to assist with data sharing of shared-use mobility providers within the Metro Vancouver region.
- A powerpoint presentation to accompany the final report summarizing the findings and recommended framework for TransLink
- Executive Summary for the UBC Sustainability Scholars online project library.

Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between April 29, 2019 and August,12, 2019.
- The scholar is to complete approximately 12 hours per week.

Required/preferred Skills and Background

☒ Excellent research and writing skills
☒ Demonstrated interest in sustainability
☒ Excellent public speaking and presentation skills
☒ Strong analytical skills
☒ Strong technical writing skills
☒ Ability to work independently
☒ Demonstrated time management skills
☒ Deadline oriented
☒ Project management and organizational skills
☒ Basic/Novice understanding of blockchain technology
☒ Familiarity with qualitative research methodologies and implementation
☒ Knowledge of shared-use transportation modes (e.g., bike share, car share, etc)

Applications close **midnight Monday February 25**.
Apply here:
https://sustain.ubc.ca/student-opportunities

To learn more about the program here:
https://sustain.ubc.ca/ubc-sustainability-scholars-program

Read the application guidelines to confirm your eligibility to participate in the program here:
https://sustain.ubc.ca/student-opportunities

Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions.