

# Evan Rose Fund Application | 2021

## Urban Planning Behind Smart Cities:

Is “smart” in smart cities enough to remedy inequality and sustainability?



Applicant:

(Student name and email)  
Reed College, '21

Faculty Mentor & Support:

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# Project Description

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## Overview

I am applying for the Evan Rose Fund to conduct research on whether the urban development vision of smart cities could be a solution for inequality and sustainability issues. I will work with Prof. Jasmine Jiang in the Reed College Economics Department. As someone interested in the topic and planning to pursue a career around inequality and sustainability issues, this research project is an incredible opportunity to explore the contemporary urban design concept as a possible solution. Leveraging Prof. Jiang's expertise in macroeconomics and inequality, I hope to conduct intensive research on the topic with the goal of publishing the findings in an academic paper.

## Proposed Experience

A [smart city](#) is an urban development framework that predominantly uses technology to boost citizen well-being and deliver more sustainable, and inclusive urban services ([OECD, 2020](#)). Some famous examples of smart cities are: New York, Paris, Tokyo, Berlin, and Hong Kong. The main goals of a smart city are to improve policy efficiency, reduce inconvenience, improve social and economic quality, and maximize social inclusion ([Gorini, 2020](#)). But what design elements of a "smart" city lead to improved sustainability and social inclusion? Do all smart cities function the same, or do particular combinations of location and urban design better lead to the intended outcomes of smart city designers? I hope to answer these questions through my research project this summer.

I devised a detailed research plan. Based on my previous research experiences, I divided my research project into three segments:

- First segment (2 weeks): During the first two weeks, I will conduct an intensive literature review on the broader topic of innovative city planning infrastructure. I will learn more about smart cities as a sustainable urban planning design. I will focus on what makes a city smart and the methodology behind its design and implementation. I will meet with Prof. Jiang regularly to discuss my findings.
- Second segment (4 weeks): Next, I move to original and quantitative work. I will use R and Stata to conduct a detailed analysis of how different ways smart cities are designed affect different quality of life measures. To name a few: education opportunities, income, climate (air quality and heat island effect), and health (mortality rate and safety reports). I would also conduct cross-country case studies on how impacts of smart cities vary across different contexts. I will work closely with Jasmine to learn and use advanced tools and techniques to study measures of inequality and sustainability.
- Third segment (3 weeks): Finally, I will organize all my work together as part of a paper. This is where I will work closely with Prof. Jiang and Prof. Nighswander to get familiar with the process of writing, editing, and finalizing an academic paper. Once the paper is approved by both the faculty, I will work closely with these mentors to publish the paper.

Where inequality and sustainability is at the heart of most academic discourse, getting to explore a modern urban design approach as a possible solution is exciting and necessary. If awarded the Evan Rose Fellowship, my deep interest in this topic will translate to a deep commitment towards this project.

## Relevant Experiences

At Reed, I was fortunate to get early experience with similar inequality-related projects. My freshman year, I won a [Davis Project grant](#) of \$10,000, to plan and execute a [grassroot-level summer project](#) addressing inequality in mental health resources for women in Nepal. The following summer I worked as a research assistant for Prof. Kimberly Clausing on a firm-level inequality project and my junior year, I worked for Prof. Tristan Nighswander on a project looking into household wealth inequality. Inspired by the experience, I decided to write my senior thesis exploring the systemic issues that contribute to the widening inequality. I briefly explored the idea of smart cities as a possible solution to inequality in my thesis. Additionally, I was a [Public Policy and International Affairs \(PPIA\) Data Analytics Scholar](#) at Carnegie Mellon University in 2020 where I did [a project](#) looking into how city design in Seattle has caused gentrification and inequality over time; the project further confirmed my interest in the topic. Besides relevant work experiences, I have taken relevant coursework—spatial data analysis, statistical learning, data science, mathematical statistics, computer science, and econometrics—that has provided me with technical skills required to successfully complete the project.

## Outcomes

Working on this project is a great way to explore whether the vision of technology-driven urban development can be a solution to inequality and sustainability issues. I will present my findings in an academic paper in collaboration with Prof. Jiang; this will directly add up to the literature in the emerging topic of technology-driven solutions to today's development concerns. This project will also lay a strong foundation for research that I will continue throughout my graduate school so that in the long run, my findings will directly influence design policies behind smart cities to make it more equitable and sustainable.

Conducting this research project will directly help me with my academic and professional pursuits. Working on an academic paper would allow me to become familiar with the entire process of doing original work and publishing in academia, which will be a great step in my research career. The research experience would also prepare me for an economics PhD program right after graduation, where I hope to specialize in economics of sustainable and equitable innovation. Moreover, my home country Nepal, a small and developing country, is currently planning on building its first smart cities as a part of its sustainable development goal, so I am personally invested in the topic. Additionally, after the successful completion of the project, I intend to collaborate with [Prof. Prakash C. Bhattarai](#), an associate professor at Kathmandu University, on smart cities in the context of Nepal. Through the project I will gain knowledge, skills, and connections in the field of technology-driven urban planning and development research, so I appreciate the opportunity to apply for the Evan Rose Fellowship.