The Human Effect Requires Affect

Addressing Social-Psychological Factors of Climate Change with Machine Learning

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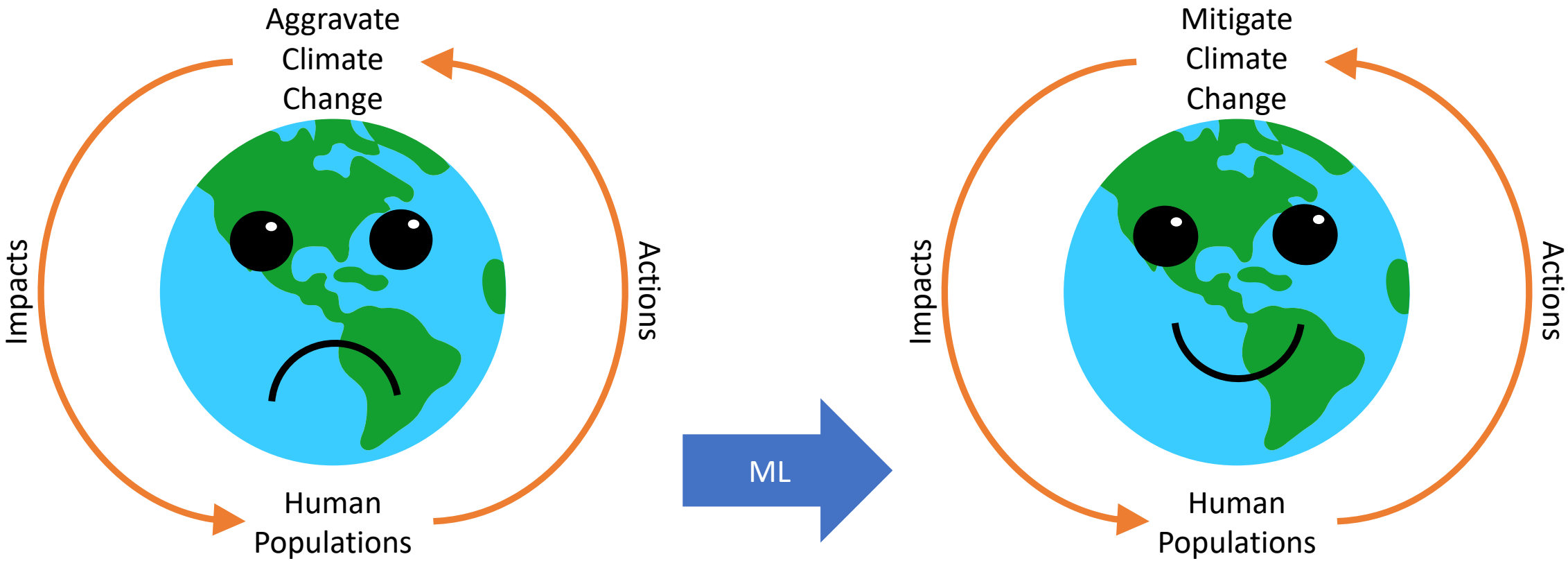
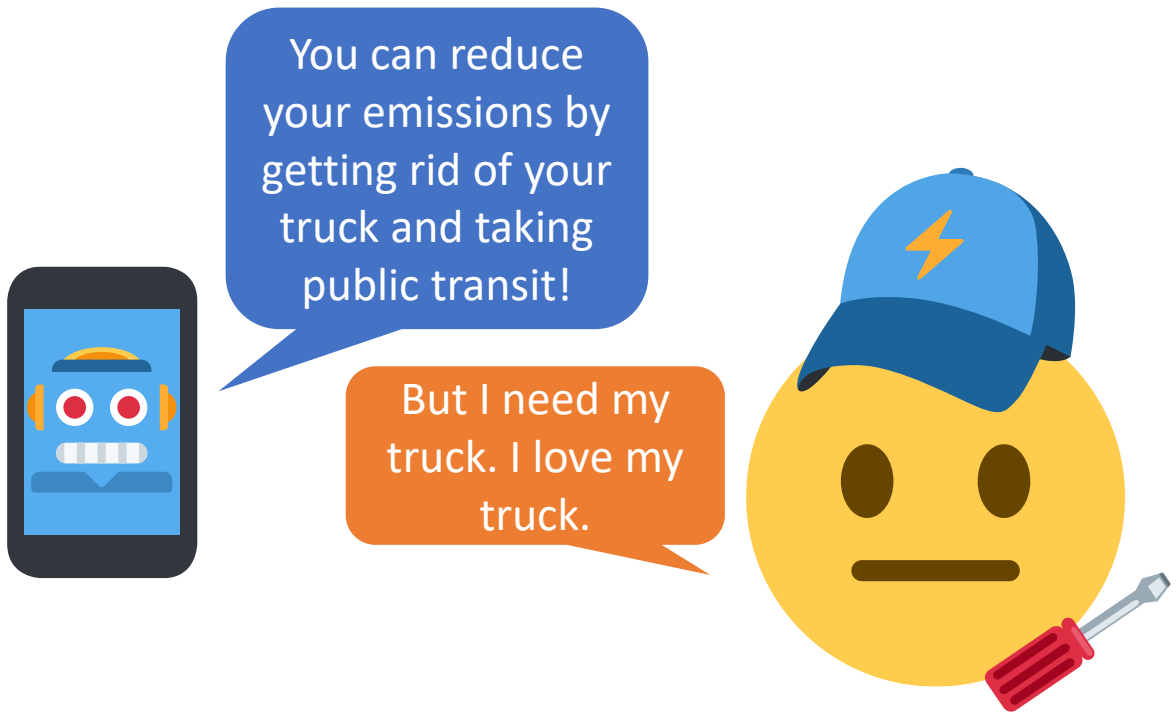
Climate Change: A global collective action problem



- Ideally, machine learning will help address the human impact on climate change
- However, these ML approaches must take the complex and diverse nature of humans into account

ML approaches should not be “one size fits all”

- Consider a ML based informational behaviour intervention to reduce emissions
- Though an intervention could be good for most people, it may not be right for some due to relevant social or psychological factors



Social-Psychological factors in climate change

Socio-demographics:

- Age
- Gender
- Education

Cognitive Factors:

- Cause knowledge
- Impact knowledge
- Response knowledge

Experiential processes:

- Personal experience
- **Affect**

Socio-cultural Influences:

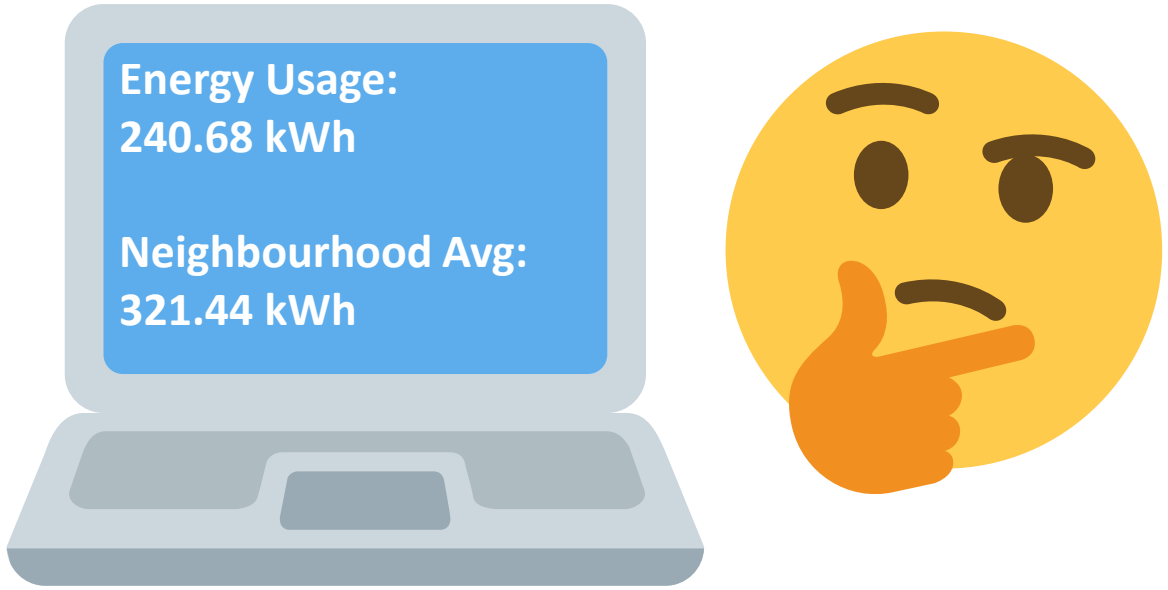
- Social norms
- Cultural values

Affect has been found to be the single largest predictor of willingness to engage in mitigative behaviours

Affect

- The underlying experience of feelings or emotions
- An evaluative heuristic that influences information processing
- Differs between individuals

Descriptive communication:



Affective communication:

Proposal: Affective ML for climate change

1. Use ML to model and learn affective identities of individuals
2. Evaluate how we could improve ML for climate change with two approaches

(i) Agent Based Modelling

- Model behaviours and mitigation strategies in relation to climate structures and expected utilities with the addition of affective factors
- Helps understand the dynamics of how affect can influence the adoption of mitigative efforts at scale

(ii) Simulated Climate Change Social Dilemma

- Small scale experiment where artificial agents attempt to aid a group of humans in avoiding simulated disastrous climate change
- Affective agents helping humans avoid toy collective-risk social dilemmas is a good first step to helping humans avoid the global-risk social dilemma of climate change

Recap

- Machine learning approaches that contend with the human effects of climate change must account for human social-psychological factors
  - Humans are complex and diverse, not account for individuality may result in unintended outcomes

- With our proposed research we hope to demonstrate how incorporating affect can improve ML for tackling climate change
  - Affect is an important social-psychological factor in climate change

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Thank you!

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