Increasing Intersection Capacity with Multiple Modes
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Research Motivation
In developing countries, multiple modes are mixed together. Their chaotic conflicting movements reduce intersection capacity. This study aims to: (i) untangle the chaos; (ii) accommodate all modes; and (iii) increase capacity.

Problem Diagnosis
Multimodal intersections exhibit inter-modal conflicts within each approach, in addition to the normal conflicts due to cross traffic. Video data obtained from multiple intersections in China show conflicts between through-moving bike streams and right-turning car streams. The videos reveal that these two streams alternate movement during the signal’s green time.

Modeling the Problem
The dotted lines in the following figure illustrate how the inter-modal conflict is resolved during the green phase of a conventional signal installation.

Pre-Signal Sort
We propose moving the inter-modal conflicts upstream by means of a “pre-signal” as shown below.

Future Work
- More complication: left turns, pedestrians, buses, etc.
- Field tests
- Design and deployment
- Scaling up to city level