City Analytics for Sustainable Mobility
CityViz – Making urban big data visible

CityViz is a new data visualisation and analytics initiative by City Futures capitalising on our unique access to urban big data for Sydney. Over the next few months a range of data will be presented on this site that will start to build a comprehensive and integrated visual depiction of our changing city.

To start, we have assembled new data on Sydney’s emerging housing market – affordability, strata development and our ‘million dollar property’ map.

In coming months we will be adding to and updating these data with new data on, for example, urban wellbeing, transport and bike use, health services and other newly available datasets. Watch this space!

City Movement Indicators

Bicycling Dashboards (Capital Cities)

Bicycling Movement (Capital Cities)

K2K Walkability Indicators

The 30 min City / Sydney Employment Clusters
CityViz – Cycling in Sydney over a 24 hour period
Trip Activity by Time
Communicating and visualising cycling data

Greater Sydney, NSW

Number of trips: 14,313
Number of cyclists: 1,164
Integrating cycling data to varied contextual information

![Image of cycling routes map]

- **a. GPS tracked cycling routes map**
- **b. Slope, parks and commercial centres**
- **c. Cycling infrastructure**

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>B</th>
<th>SE_β</th>
<th>β</th>
<th>Part-Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>245.896</td>
<td>243.338</td>
<td>.028</td>
<td>.027</td>
</tr>
<tr>
<td>Gender</td>
<td>298.284</td>
<td>74.855</td>
<td>.343</td>
<td>.318</td>
</tr>
<tr>
<td>Distance to commercial areas (DistComm)</td>
<td>1.040</td>
<td>.022</td>
<td>.323</td>
<td>.470</td>
</tr>
<tr>
<td>Distance to Parks and coastal areas (DistParks)</td>
<td>1.253</td>
<td>.018</td>
<td>.323</td>
<td>.470</td>
</tr>
<tr>
<td>% of the overall track with slope &lt;= 2%</td>
<td>355.991</td>
<td>299.030</td>
<td>.150</td>
<td>.121</td>
</tr>
<tr>
<td>% of the overall track with slope &gt; 2% and &lt;= 5%</td>
<td>-669.270</td>
<td>333.528</td>
<td>.021</td>
<td>.014</td>
</tr>
<tr>
<td>% of the overall track with slope &gt; 10%</td>
<td>1246.117</td>
<td>504.025</td>
<td>.258</td>
<td>.219</td>
</tr>
<tr>
<td>% of the overall track with mixed traffic lanes</td>
<td>5822.758</td>
<td>180.877</td>
<td>.227</td>
<td>.168</td>
</tr>
<tr>
<td>% of the overall track with no cycling infrastructure</td>
<td>-1129.253</td>
<td>225.874</td>
<td>.035</td>
<td>.034</td>
</tr>
</tbody>
</table>

*Note: *p < .05; B = unstandardized regression coefficient; SE_β = standard error of the coefficient; β = standardized coefficient.
Modelling and simulation of cycling patterns (agent-based modelling)

Ruled-based simulations (current context)

Ruled-based simulation (scenario with disruption by long term road works – red lines)
30 minute city, Sydney CBD
Parramatta Light Rail options
• Big data is providing information about active and public transport at a resolution never available before.

Concluding thoughts

• Handling and integrating big data is not an ordinary task, and more development is needed.

• Big data can be used for understanding transport patterns and dynamics, and monitoring change at high spatial and temporal resolutions.

• Tools are needed to assist urban and transport planning to incorporate big data analytics into routine procedures.

• Digital planning tools need to be co-designed with end-users for full usability and impact on urban planning and management.

• Partnerships with academia, government and industry have been essential for our research development.