After outlier removal

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **mean** | **std** | **min** | **25%** | **Median** | **75%** | **max** | **N** |
| **Distance (m)** | 6634 | 9927 | 50 | 840 | 3147 | 8092 | 99810 | 177938 |
| **Duration (sec)** | 1537 | 1285 | 60 | 616 | 1204 | 2081 | 10799 | 177938 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wolf *et al.* (2001) | Distance; duration; land-use matching | Georgia, USA 3 days  ﻿March 23 through April 28, 2000 | 13 (156 trips) | 93% |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Probabilistic Methods: Multinomial Logit Model | | | | |
| Oliveria *et al.* (2014) | Duration; Mode; Land use; Personal locations proximity | Georgia, USA 2011 | 1,354 (﻿10,512 trips) | 70% (95-97% for work and school) |

Extra:

Respondents:

B & M: 1104

Oliv 1,354

Xiao 321

Mont 156

Kim 793

Yaz 6845

Zhu 10,372

Sentences:

The casual links have been harder to prove in the literature

Owing to the…

To Add:

* This has affected probabilistic models over machine learning models (Oliveria et al., 2015)

Arguably, there is a need for more encompassing approach to the modelling inputs has allowed more generic model creation that can applied to a range of different purposes (as we do not know which purposes rely on which i.e. POI may be important for tourist purpose but not for work purposes).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gong *et al.* (2018) | POI; Socio-demographics; Temporal Features; Trip Duration; Weather | ﻿Hakodate City, Japan 2012–2013 | (﻿9981 trips) | n/a |

Spatial-Temporal:

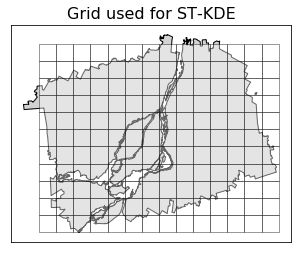
ST-K

Space-time Ripley’s K and spatial-temporal randomness -> end to start

[One STKDE Ripley’s K]

Space-time KDE end to start

ST-KDE



**Figure 4.X**

[Some sort of plot for KDE]

Join the ST-KDE back to the data -> if there a trip at a particular time and space (a grid region) can be flagged as in the given cluster (0,1)

11 columns of STKDE cluster

# Appendices

## Appendix 1 Notification not to apply for Ethical Approval

# Appendix 2 Python Script used for analysis

Script for retrieval of :

Code is available online at https://github.com/Thomasjkeel/MSc\_Dissertation under ‘. (This program consists of 500 lines written in Python computer language).  
*Description:* contains the code to create the figures and carry out the statistical analysis of this IGS.

# Appendix 3 Mean Direction and Distance Calculations

is calculated for each pair of points in each trip, the mean direction is calculated from the collection of these points using:

Calculations for mean direction in degrees:

*V\_east = magnitudes \* np.mean(np.sin(from\_dir \* np.pi/180))*

*V\_north = magnitudes \* np.mean(np.cos(from\_dir \* np.pi/180))*

*then..*

*mean\_dir = np.arctan2(V\_east, V\_north) \* 180/np.pi*

*mean\_dir = (360 + mean\_dir) % 360*

*mean\_dir = np.mean(mean\_dir)*

*Calculations for mean distance (magnitude) in degrees:*

*C = (1. / len(from\_dir)) \* (np.sum(np.cos(from\_dir \* np.pi/180)))*

*S = (1. / len(from\_dir)) \* (np.sum(np.sin(from\_dir \* np.pi/180)))*

*then…*

*resultant\_magnitude = (C\*\*2 + S\*\*2)\*(1./2.)*