Bike Sharing Atlas

A Global Perspective on Bike-Sharing Networks and Urban Commuting Patterns

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Reveal interesting insights and provide a benefit for various target groups.

• Patterns of bicycle usage

• Underlying spatio-temporal dynamics of a city
• Recorded data from different data sources
• Created multiple visualization prototypes
• Worked with various user groups
Focus Networks

We have selected various bike-sharing networks that share their data and contribute to open data initiatives around the globe. Compared to all other networks, these provide detailed trip information that allows us to conduct an in-depth analysis of the network activity. The focus networks are marked with a compass symbol.

Help & Guides

What can you find on this website?

Live data

This website provides real-time data of available bikes and docks in more than 300 networks worldwide. Additional predictions make it easy to check if you can pick up and drop off a bike at the desired stations.

- Get the current state of the bike-sharing system in Vienna, Austria

Route planner

Give us the endpoints of your trip and our algorithm will find the nearest bikeshare locations and fastest route.

- Compute an example route
Bike-Sharing in Paris

Live fill levels of all stations
Route planner

Automatically finds the nearest stations and the fastest cycling route

Walk (6 min)
Walk 0.47 km to the next bike sharing station: 352 ECHENVESTE 80/WAR

Rent a bike (22 min)
Grab a bike and cycle 4.42 km to 361 QUINTANA ROC-HUANGMILLO, which is the closest bike sharing station to your destination.

Walk (1 min)
Finally, walk 0.07 km to your destination.
468 networks with more than 21,500 stations
**Timestamp every 15 min**

<table>
<thead>
<tr>
<th>Station ID</th>
<th>30184e9…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>citybike-wien</td>
</tr>
<tr>
<td>Empty Slots</td>
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<tr>
<td>Free Bikes</td>
<td>11</td>
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<tr>
<td>Timestamp</td>
<td>2017-07-27 08:45:02</td>
</tr>
</tbody>
</table>
Route planner

Automatically finds the nearest stations and the fastest cycling route

Route Details
You will need about 28 min (5.17 km) until you arrive at your destination.

Walk (6 min)
Walk 0.47 km to the next bike sharing station: 582 ECHEVERRÍA SOLAR

Rent a bike (22 min)
Grab a bike and cycle 4.62 km to 581 QUINTANA ROO-MANZANILLO, which is the closest bike sharing station to your destination.

Walk (1 min)
Finally, walk 0.07 km to your destination.
London
Capital of United Kingdom | 8.67mio inhabitants

Average fill levels
Each line represents one station
Visual selection tool and multi-coordinated views

Expose commuting patterns
Vienna
Capital of Austria | 1.74 mio inhabitants

Lasso tool
Select geographical regions

Average utilization

Fill Level
0.00% 10.00% 20.00% 30.00% 40.00% 50.00% 60.00% 70.00% 80.00% 90.00% 100.00%

Citybike Wien (121 stations)

Elevation Profile

Weather

Similar Networks:
- Marseille, FR
- Dresden, DE
- Dresden, DE

Bike Sharing Atlas

OVERVIEW  NETWORKS  CHARACTERISTICS  ABOUT

Search Cities & Networks...
Linking & brushing
Reveals the influence of elevation differences
Network overviews with small multiples

Indicators for the size, structure and density
## Networks

Explore bike-sharing networks worldwide.

### Number of stations

<table>
<thead>
<tr>
<th>Focus</th>
<th>Decking</th>
<th>Country</th>
<th>City</th>
<th>Network</th>
<th>Operator</th>
<th>Number of stations</th>
<th>Network activity</th>
<th>Ø Distance to nearest station [m]</th>
<th>Ø Number of stations in a 2km radius</th>
<th>Correlation (temperature - network activity)</th>
<th>Ø Trip duration [min]</th>
<th>Ø Trips per station</th>
<th>Max. Elevation difference [m]</th>
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<td>131.68</td>
<td>51.36</td>
<td>11.9</td>
</tr>
</tbody>
</table>

### Statistics and network characteristics

- **38/364 Networks**
- **Number of stations**
- **Population (urban area)**
- **Distance to nearest station [m]**

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### Filters

- **Focussing on**
  - Country
  - City
  - Network
  - Operator

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### Additional features

- **Sortable table**
- **Search Cities & Networks...**
Worldwide trend with shared opportunities and challenges.

Existing solutions take a rather narrow/local view.
A **global** perspective on bike sharing networks.
Methodological Approach

Design & Implementation

Data acquisition and preprocessing

Evaluation
Usage Scenarios

Expert Interviews / Chaffeur Demos

- Bike Sharing Operator
- Public Authorities
- City Planners
- Urban Sociology Researchers

Think-Aloud Studies

- General Public Users
Implementation

Preprocessing
- Python

Data Storage
- MySQL, CSV files

Web Application
- PHP
  - HTML, CSS, Javascript

Visualization
- D3.js (visualization, interactions)
  - Leaflet (interactive maps)
Discussion

- Beyond classical user-centered design
- Leverage the global scale of the data
- Use the recorded data for other in-depth analyses
- Examine general applicability (car sharing, smart city)
Thank you!

bikesharingatlas.org

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