

# The SPNET package: Plotting social networks on maps with R

E. Rousseaux<sup>a</sup>, M. Deville<sup>b</sup> and G. Ritschard<sup>a</sup>

<sup>a</sup> Institute for Demographic and Life Course Studies  
University of Geneva, Switzerland  
prenom.nom@unige.ch

<sup>b</sup> Department of Sociology  
University of Geneva, Switzerland  
prenom.nom@unige.ch

**Mots clefs** : Network Data, Spatial analysis, Data Visualization, Social Sciences.

Social networks analysis has received special attention over the past decade, and a lot of tools for manipulating and rendering social networks have emerged. In several situations a social network is associated with a spatial dimension, and behaviors observed within the network cannot be interpreted without taking into account the location of each of its nodes regarding to the other nodes. This is the case, for example, when studying inflows/outflows between cities or companies, or when studying people debating in a room. Based on the `sp` package [1], which provides efficient classes for storing spatial data and methods for handling and rendering them, the `spnet` package aims at facilitating the rendering of social networks on maps. The package is especially designed for monitoring time-varying networks to observe how connections and flows evolve over time. The package is also designed to be used together with the `Rsocialdata` package [2] which provides tools for preparing network data. After a review of the classical tools designed for dealing with maps and networks in R, we introduce the main functionalities of the SPNET package, such as for example creating/manipulating maps and networks data, matching coordinates on the map with network nodes, plotting several networks, efficiently customizing the graph to add colors, symbols, set arrow heads, deal with opacity of links, filter insignificant links. With these tools users can make they graphics easy to understand and make significant network patterns emerge. We provide detailed use examples, and illustrate the package with two applications based on real data, respectively in (1) political debate and (2) migration. The package is currently available on the R-Forge platform and the submission to the CRAN is planned.

## References

- [1] Roger S. Bivand, Edzer Pebesma, Virgilio Gomez-Rubio, 2013. Applied spatial data analysis with R, Second edition. Springer, NY. <http://www.asdar-book.org/>
- [2] Rousseaux E., Bolano D. and Ritschard G. (2013), “The Rsocialdata package: Handling survey data in R”, In XXVII IUSSP International Population Conference, Busan, Republic of Korea, August 26th to 31th, 2013.