Post doctoral position : 12 months
at City Mobility Transport Lab (Ecole des Ponts)

Research theme : "Mobility analyst"

Expected Candidate Profile : PhD in Geography / Economy / Planning / Sociology with strong quantitative background.

Application deadline : extended november 25th, 2018 (initially nov 9th)

City, Mobility and Transport Laboratory : presentation

Created in 2003, our multidisciplinary research lab adresses issues and trends on transport, mobility and cities. LVMT is a joint lab resulting from the partnership between an engineering school –École des Ponts ParisTech (ENPC), a research institute - Institute on Technology, Transport and development (IFSTTAR), and Université Paris-Est Marne-la-Vallée (UPEM). It is an interdisciplinary laboratory dedicated to the holistic understanding of territorial systems, their population as a society and their mobility. Its research projects associate Human and Social Sciences (geography, sociology and economics) to Engineering Sciences (traffic physics, behavioral and economic modeling, complex system modeling and simulation).

More information : www.lvmt.fr

Post doc offer

Research context : Geolytics project and Chair on the "Socioeconomic Analysis of Urban Passenger Transit"

- **The Geolytics project** is an R&D project that started in 2016 and will be concluded till mid 2019. The research consortium encompasses two start-ups (IT4PME and Milanamos), two more established yet still innovating companies (Coyote, SFR), the standardization body W3C and two research and education bodies, namely the Telecom ParisTech team specialized in data science and the ENPC-LVMT team specialized in mobility modeling.The *research aim* is to analyze detailed and continued passenger tracking (based on smartphone geolocalization) in order to depict individual profiles of mobility-making as well as the usage of places and the multimodal conditions of access to and from them – both in real time and off-line. This involves massive data collection and their analysis using Artificial Intelligence algorithms, including the design and software development of specific functions.

- **The Urban Mobility Chair** is an academic and research partnership between ENPC and Ile de France Mobilité, the Transit Organizing Authority of the Paris region. Prominent among its research aims is the topic of traffic econometrics on the basis of Automated Fare Collection Data (the Navigo system) and Automated

Vehicle Location data (mostly GTFS data from the transit operators including RATP and SNCF-Transilien).

Post doc tasks

Both the Geolytics project and the econometric topic at the UMC rely upon datasets collected massively on vehicle and passenger trips. There are 4 kinds of data: (i) FCD from the Coyote system of dynamic information on roadway traffic, (ii) FMD from the Geo4Cast mobile app developed by IT4PME, (iii) AFC from the Navigo system, (iv) AVL from Ratp and Transilien.
The research objectives consist in exploiting such geo-localized data in order to analyze mobility along the following three research directions:
(1) The characterization of travel times on a roadway network with respect to places and origin-destination pairs. The aim is to assess “local fluidity” and to detect “hot spots” that exhibit severe congestion.
(2) The characterization of mobility practices and behaviors: for any person whose trips have been monitored during several days, characterize a “mobility physical profile” in terms of places visited, number of trips per day, distance travelled per day, travel modes utilized. Early results already achieved are to be further developed along issues such as “week mobility versus weekend mobility” and “evening leisure activities”.
(3) The analysis of spatial relationships between places on the basis of the location of people along time and of their trips between places.
Specific requests need be created and programmed to produce relevant information on the basis of data. These will be organized in “Analysis programs” targeted to deliver synthetic indicators and meaningful illustrations (dataviz issue). Each research direction will give rise to a sample application.

Scientific supervisor : Fabien.leurent@enpc.fr

Candidate profile
PhD in Geography / Economy / Planning / Sociology with strong quantitative background.
Skills required
-Basic statistical skills and command of GIS tools.
-Previous knowledge of research on individual mobility
-Programming : existing code is in R, the candidate must be able to understand it, use it and develop it
- SQL, NOSQL and ML would be a plus
- English proficiency ; French proficiency will also be appreciated.

To apply
- Application letter, resume, references to be sent to fabien.leurent@enpc.fr
- Application deadline : nov 25th, 2018

Conditions

- 12 months working contract (hosted by Ecole des Ponts)
- Work place : LVMT, Bienvenüe building at Cité Descartes, Champs-sur-Marne
- Starting date : as soon as possible (no later than january 2019)
- Wages depending upon experience : starting 1950€ / month « net ».