***Post-doctoral/temporary research associate position***

**Econometrics of mobility behavior**

**for evaluating autonomous mobility services**

# Context

## Positioning

The offer is part of the work carried out by the Laboratoire Ville Mobilité Transport (LVMT) within the MOBAUTO² project for autonomous mobility on connected highways.

[The LVMT](http://www.lvmt.fr/) is a joint research unit of Université Gustave Eiffel and Ecole des Ponts IP Paris. It deals with major societal issues concerning cities, mobility and transport.

The MOBAUTO² project brings together a consortium comprising Vinci Autoroutes (motorway company), Milla Group (builder of new mobility solutions), SAVAC (transport operator) and the Université Gustave Eiffel, to implement an autonomous mobility experiment on the A10 freeway. The aim of this experiment is to test an autonomous shuttle service to complement the express bus service deployed on the A10 between Massy and Dourdan, by boosting the frequency offered during rush hour to relieve congestion on the line, and offering an on-demand service during off-peak hours to reduce waiting times.

Université Gustave Eiffel, through its LICIT/ECO7, LESCOT and LVMT laboratories, is leading the evaluation of the experiment. The economic evaluation is being carried out by the LVMT (in conjunction with other Univ. Eiffel laboratories).

## Scientific background

Economic evaluation (or CBA for cost-benefit analysis) analyzes the impact of experimental autonomous mobility services on society, from the point of view of users (time savings, comfort, safety, etc.), the autonomous mobility operator (investment and operating costs, revenues), and the community (infrastructure investments, environmental impacts, impacts on other modes of transport, etc.).

To carry out the CBA, two essential inputs are: 1) the transport demand forecast, and 2) the values of time associated with each mode. Both are based on the analysis of user preferences for different modes of transport. For autonomous mobility services, which currently only exist in France in the form of experiments, stated preference surveys are the main method for estimating these preferences, in the absence of observed data enabling methods based on revealed preferences to be implemented.

# Offer description

## Missions

The project in which the candidate will participate will aim to design a stated preference survey to study the modal choice behaviors of transport users. This will enable us to assess the use of autonomous mobility services in relation to conventional mobility services (public transport, car, soft modes, etc.), as well as the time values associated with each mode. The survey will be carried out both among a panel of users selected to take part in the experiment on the A10, and among people not taking part in the experiment but living along the A10 corridor, who could therefore potentially use the autonomous mobility service in the future if the experiment were to be continued.

The results of the stated preference survey will be used to 1) feed the multi-agent transport model developed at LVMT, in order to forecast demand for the tested services, and 2) establish the socio-economic balance of these services using the cost-benefit analysis (CBA) method. The multi-agent model is based on MATSim software [(](http://www.matsim.org/)www.matsim.org), which has been instantiated for the Île-de-France region.

The candidate will first design the stated preference survey, then mobilize the results of this survey to estimate a modal choice model and the associated values of time. After transmitting the results to the modeling team at LVMT, and then recovering the outputs of MATSim simulations with the help of the same team, the candidate will then be able to proceed with the socio-economic evaluation (CBA). For this task, the candidate will be able to reuse and adapt the socio-economic assessment frameworks already implemented at LVMT, and benefit from the support of several researchers on the subject (including Nicolas Coulombel, MOBAUTO² project leader at LVMT).

All the tasks carried out by the candidate will be carried out in close collaboration with the other members of the project team at LVMT (Nicolas Coulombel on the CBA part, the modeling team), at Université Gustave Eiffel (in particular with the LICIT laboratory, which will also be taking part in the survey) and within the consortium. The candidate will make an active contribution to the project, preparing and taking part in progress meetings and drafting deliverables.

Lastly, the candidate may contribute to teaching related to the project, in particular by supervising student projects at ENPC or the Paris School of Economics

## Work plan (indicative)

Targets can be processed by linking the following tasks together:

1/ Appropriation phase of the characteristics of the autonomous mobility service tested and of the target service in the future (if the experiment is continued

2/ Designing the stated preference survey

3/ Dissemination of the survey (with the help of a polling firm or research consultancy)

4/ Estimation of modal choice model, transmission of results to modelling team

5/ Socio-economic assessment of the autonomous mobility service (using MATSim outputs)

6/ Summary and recommendations

7/ Drafting the deliverable

8/ Value enhancement

# Skills required

Given the skills required to design and analyze a stated preference survey, the proposal is primarily aimed at candidates with a PhD in economics or statistics (or more broadly in data science). Experience in econometrics applied to transport will be highly appreciated, as will knowledge of cost-benefit analysis.

Candidates must be rigorous and methodical, imaginative and constructive, and comfortable documenting their work both in academic papers and in technical notes for internal use by the project team.

Autonomy in work is highly appreciated, as is ease in dealing with internal partners.

# Practical information

**Location:** LVMT laboratory, Bienvenüe building, Cité Descartes, Champs-sur-Marne

**Scientific project manager:** Nicolas Coulombel

**Salary**: from €2,100 net, variable according to level of qualification and experience

**Duration:** 15 months

**Start date**: as soon as possible from April

# To apply

Send your CV and covering letter to [nicolas.coulombel@enpc.fr](mailto:nicolas.coulombel@enpc.fr)