

## PhD Position in Traffic Modelling & Simulation – Fall 2017

### Facts Sheet:

*Location:* Barcelona

*Department / Research Group:* Civil and Environmental Engineering Department / BIT-  
Barcelona Innovative Transport

*Contract:* 4 years

*Hours:* 37.5 hours per week

*Salary:* 16422 €per year gross

*Education:* Master degree

*About employer:* Universitat Politècnica de Catalunya ([UPC – BarcelonaTech](#))

*Short link:* [https://fsoriguera.files.wordpress.com/2017/09/phd\\_position\\_upc.pdf](https://fsoriguera.files.wordpress.com/2017/09/phd_position_upc.pdf)

*Closing date:* October 2<sup>nd</sup>, 2017

**Position Summary:** The Barcelona Innovative Transport (BIT) research group in the Department of Civil and Environmental Engineering at the Universitat Politècnica de Catalunya (UPC-BarcelonaTech) invites applications for a PhD position in traffic modelling and simulation. The position should be covered during this Fall 2017 in the area of microscopic modeling of autonomous vehicles. The selected candidate will be hired first temporarily for a maximum duration of one year, and then he/she is expected to obtain a 3-year PhD fellowship framed in a research project (i.e. [National Programme for the Promotion of Talent and Its Employability](#)).

**Research group summary:** The BIT research group works in several transport operations and city planning topics. The candidate is expected to join the sub-group led by Dr. Francesc Soriguera ([fsoriguera.com](#)) whose main research directions currently focus on freeway traffic analysis and on vehicle sharing models in urban mobility. As examples in traffic operations research, Dr. Soriguera has worked in freeway travel time estimation with data fusion, has assessed the effects of dynamic speed limits in the freeways accessing Barcelona, and has conducted real life experiments in the Barcelona Highway Lab. Currently, the focus of Dr. Soriguera's research moved towards the interaction between autonomous and traditional vehicles in freeway traffic.

**Primary Responsibilities:** The candidate will work in the design of new microscopic traffic models to assess the effects and interactions of autonomous cars in freeways. Specifically, the model should reproduce vehicle platooning strategies in order to make traffic flow more efficient and sustainable. Additionally, the successful candidate will assess the effects of platoons on the overall flow, composed by a mixed traffic of autonomous and traditional vehicles. This research needs to be made with the higher quality standards in order to be published in top tier scientific journals in the field. The final goal will be to complete a PhD thesis. This work will be under the direct supervision of Dr. Soriguera.

## Requirements

- To hold a master degree in engineering, mathematics or physics.
- High interest in traffic related research.
- Strong skills in a coding language to process data and implement models.
- Excellent English communication skills. Spanish will be appreciated.
- Some experience or knowledge in transport modeling methodologies.
- Experience using traffic simulation tools as AIMSUN, VISSIM, VISUM, etc will be appreciated.
- The candidate will apply to be admitted in the [Civil Engineering PhD Program](#) at the UPC. Only if he/she is accepted will be hired.

## Application Submission:

To apply please send the following documents to [francesc.soriguera@upc.edu](mailto:francesc.soriguera@upc.edu) along with a letter of application in a single PDF file entitled “FPI\_COOP\_Lastname.pdf”

- Download and fill the following form: [PhD Application Form](#)
- A detailed CV/resume
- Proof of English language proficiency
- Abstract of your MSc thesis (max 1 page)
- 2 pages about your ideas of an approach and methodology to assess the impact of autonomous cars in freeway traffic efficiency, including elaborating on data and modelling aspects.