

IVORY - Artificial Intelligence for Vision Zero in Road Safety

PhD Candidate Vacancy Description



Within the framework of the Horizon Marie Skłodowska-Curie Actions ([MSCA](#)) Industrial Doctoral Network [IVORY - Artificial Intelligence for Vision Zero in Road Safety](#), a call for applications for the following Industrial PhD candidate has been launched, to be hosted by National Technical University of Athens ([NTUA](#)), a Centre of Road Safety Research Excellence with global recognition.

PhD #7

Data fusion of traffic, behaviour & infrastructure for holistic driver assistance

Vacancy description

Within the IVORY doctoral network, this PhD position aims (i) to exploit multi-parametric data for the creation of a holistic AI framework for road safety-related evaluation of driver behaviours, (ii) to define appropriate traffic, behaviour and infrastructure parameters or other Key Performance Indicators to be collected and used in the AI-based models, (iii) to create new AI algorithms harmonising the selected parameters to comparable datasets and (iv) to integrate the developed AI algorithms to telematics-based applications focusing on driver assistance and support.

The position contributes to road safety research by acquiring new knowledge on integration and harmonisation of traffic, behaviour and infrastructure big data parameters, and developing a functional AI framework incorporating these elements based on driver telematics with transferability evaluations, that will lead to the development of new and seamless road safety solutions.

	A case-study utilising driver telematics in an urban area will be conducted, with actionable results, compatible with the vision and activities of OSeven. The related framework can be used to develop an app providing personalised recommendations to drivers based on their trip/route habits.
Project description	IVORY (ivory-network.eu) is a Horizon Europe MARIE SKLODOWSKA-CURIE ACTION Industrial Doctoral Network consisting of 22 partners (universities, industry, and non-governmental organizations). The project aims to develop a new framework for the integration of AI in road safety and train a new generation of leading researchers in the field, in order to address the UN Sustainable Development Goals target 3.6 (halving the number of traffic fatalities by 2030) and EC 'Vision Zero' strategy (eliminating traffic fatalities by 2050). PhD students will obtain their PhD degree from the relevant academic partner, and spend at least 50% of their PhD time at the relevant non-academic partner.
Academic host	National Technical University of Athens (NTUA), Athens, Greece School of Civil Engineering Department of Transportation Planning and Engineering Months 19-36 of PhD
Industry host	OSeven, Athens, Greece, Months 1-18 of PhD
Secondment(s)	Royal HaskoningDHV, Amersfoort, the Netherlands, Duration: 4 months
Research field(s)	Transport engineering; Traffic safety; Data science; Driver telematics
Application deadline	26 July 2024
Type of contract	Fixed-term
Employment status	Full time (1.0 fte)
Eligibility criteria	<ul style="list-style-type: none"> • A Master's degree (or equivalent); • Not in possession of a doctoral degree at the date of the recruitment; • Recruited applicants can be of any nationality and must undertake trans-national mobility (i.e., move from one country to another) when taking up the appointment. In particular, at the time of selection, the recruited applicant for this position must not have resided or carried out their main activity (work, studies, etc.) in Greece for more than 12 months in the 3 years immediately prior to their recruitment. Short stays, such as holidays, are not taken into account.
Required skills	<ul style="list-style-type: none"> • A Master's degree (or equivalent) in computer science, mathematics, computer/electrical engineering; other Master's degrees (i.e. physics, civil/transport/mechanical engineering) will also be considered, if you have experience in algorithm development • Familiarity and hands-on experience with machine learning algorithms • Familiarity with statistics (statistical tests and regression) • Coding skills in Python • Strong conceptual and analytical skills • Proven capacity to undertake research • Excellent research, academic writing and presentation skills • The ability to work both independently and as part of a team • High level of proficiency in English

	<ul style="list-style-type: none"> • Commitment to undertaking multi-year (3 years or more) doctoral research
Optional skills (preferred but not required)	<ul style="list-style-type: none"> • Familiarity with data handling and manipulation, experience working with big data • Passion about road infrastructure and transport safety fields
English requirement	Proof of English language proficiency at a Common European Framework of Reference (CEFR) level of C1, or an MSc degree in English, or IELTS: minimum 8.0 / TOEFL: minimum 110
Salary	The successful candidate will receive an attractive salary following the MSCA regulations for doctoral candidates. The exact salary will vary depending on the country of the host partner and will be confirmed upon appointment. The salary includes a living allowance, a mobility allowance, and a family allowance (if the recruited doctoral candidate has or acquires family obligations during the duration of the fellowship), and is very competitive overall.
Other benefits	In addition, the doctoral candidate will benefit from extensive training within the IVORY network, which includes internships/secondments in other laboratories, a variety of training courses (including transferable skills), and active participation in workshops and conferences.
Application process	<ul style="list-style-type: none"> • Candidates should apply electronically using the link indicated in the PhD position(s) of their interest; • Candidates should provide the following documents: <ul style="list-style-type: none"> ○ Detailed CV, including information on the candidate's proficiency in English ○ Motivation letter (1 page), describing why the position fits the applicant ○ Contact information of 2 references
Academic host	The National Technical University of Athens (NTUA) is the oldest engineering school in Greece and it plays a paragon role in the scientific, technical and economic development of Greece but also in Europe and worldwide, consistently ranking as the best Greek technical university. Lately, it is ranked among the top engineering and technology universities (3rd in Europe and 7th worldwide) by Shanghai World University Rankings. NTUA has been involved in more than 160 road safety research projects since the early 1990s, comprising 70 European Commission projects, 14 International Organisation projects (UN-ECE, WHO, EIB, World Bank, ITF, CEDR) and 76 Greek projects. NTUA has well established communication channels to promote research findings: more than 800 road safety scientific publications highly cited globally, including more than 220 in scientific journals and 550 in scientific conferences. The NTUA Road Safety Observatory (NRSO) (www.nrso.ntua.gr) has a widespread recognition at the global road safety community as a center of research and innovation excellence on road safety, having received during the last 10 years more than 150.000 road safety visitors and more than 2,800,000 visits (today steadily more than 3.000 visits per month).
Industry host	OSeven is a VC backed, high technology company and part of Endeavor Global network. The company provides world-class telematics solutions for insurance companies, banks, telecom, automotive, leasing, and fleet management companies around the globe. OSeven's AI-enabled, Big-Data

	<p>telematics solution analyses data collected from different sources (smartphones, OBD devices, Beacons, connected vehicles) to assess the risk associated with driving behaviour and record the vehicle's mileage. Leveraging advanced Machine Learning, OSeven achieves with great accuracy the detection of several risk factors, including harsh braking and acceleration events, speed limit violations and mobile use while driving.</p>
Additional information	<p>For more information about this vacancy, please contact Professor George Yannis at this email address: geyannis@central.ntua.gr</p>