

Open PhD position in Stochastics at CWI

Centrum Wiskunde & Informatica (CWI), the research institute for mathematics and computer science in Amsterdam (The Netherlands) has a vacancy in the *Stochastics research group* for a PhD student in the research project “Dynamic urban traffic flow management using floating car, planning, and infrastructure data” (Dynafloat).

Description

The PhD student will develop stochastic mathematical models for road traffic analysis so as to jointly study interacting bottlenecks while capturing the essential characteristics of road traffic dynamics. We will use microscopic models that mimic individual car dynamics, mesoscopic models that capture aggregated traffic flows and macroscopic models that incorporate space-related dynamics in urban networks with different characteristics.

The project answers to the enormous challenges that growing urbanization in concentrated areas poses to society. The main objective of the project is to develop control methods to efficiently exploit the available infrastructure, using nowadays massively available floating car data in addition to data from roadside equipment.

The vacant position is at the heart of one of three work packages, specifically addressing the design of incentive mechanisms (pricing/rewarding) to achieve a better spread of traffic in space and time. The candidate will combine stochastic process analysis with other mathematical methodologies, including game theory, transportation theory and mathematical economics. After a short initial phase, he/she will work in close collaboration with researchers in two other work packages focusing on dynamic control using (i) in-car navigation systems and (ii) road side equipment, respectively.

The project is a close collaboration between several academic, industrial and semi-governmental partners: *University of Twente*, *Eindhoven University of Technology*, *CWI*, *University of Amsterdam*, *ARS Transport & Traffic Technology* (main industrial partner), *De Verkeersonderneming Rotterdam* and *Stichting Sensor City Assen*. The candidate will work toward a PhD from the *University of Amsterdam*.

Requirements

Candidates are required to have a Master’s degree in (applied) mathematics, econometrics or industrial engineering, with knowledge of applied probability and/or stochastic operations research. Preference is given to candidates with knowledge of one or more of the following areas: stochastic control, queueing theory, game theory, transportation theory, mathematical economics, spatial economics, traffic engineering, inventory management, data analysis. For more information, please contact us (see contact details below).

Conditions of employment

The terms of employment are in accordance with the Dutch Collective Labour Agreement for Research Centres (“CAO-onderzoeksinstituten”). The gross monthly salary, for a PhD student on a full time basis,

is €2,121 during the first year and increases to €2,718 over the four year period. Employees are also entitled to a holiday allowance of 8% of the gross annual salary and a year-end bonus of 8.33%. CWI offers attractive working conditions, including flexible scheduling and help with housing for expat employees.

Please visit our website for more information about our terms of employment:

<http://www.cwi.nl/terms-of-employment>

Contract type: Temporary, 4 years

Organisation

Website: <http://www.cwi.nl/>

Centrum Wiskunde & Informatica (CWI) is the Dutch national research institute for mathematics and computer science and linked to the Netherlands Organisation for Scientific Research (NWO). The mission of CWI is to conduct pioneering research in mathematics and computer science, generating new knowledge in these fields and conveying it to trade, industry, and society at large.

CWI is an internationally oriented institute, with 160 scientists from approximately 27 countries. The facilities are first-rate and include excellent IT support, career planning, training, and courses.

CWI is located at Science Park Amsterdam that is presently developing into a major location of research in the natural sciences in The Netherlands, housing the sciences of the University of Amsterdam as well as several other national research institutes.

Research group

Website: <http://www.cwi.nl/research-groups/Stochastics>

The Stochastics group consists of many talented, international researchers. Over the past few decades the group has made substantial contributions to fundamental research as well as helping industrial partners to apply these solutions in practice. The Stochastics group has a long track-record of excellent PhD students pursuing successful careers in academia and industry.

Application

Applications should be sent **before December 20, 2015**, by email to Prof.dr. Sindo Núñez-Queija (sindo@cwi.nl, +31 20 5255010) and Prof.dr. Rob van der Mei (mei@cwi.nl, +31 6 13492229).

Only applications will be considered that include a c.v., a short motivation letter (100-200 words) and two reference contact details. (If available, accompanying reference letters are appreciated, but can also be requested by the committee after December 20.)