

INDOOR POSITION AND RETAIL ANALYTICS
JOINT PROJECT WITH PHILIPS LIGHTING
TECHNICAL PROJECT DESCRIPTION

Business context:

Today's shoppers are more sophisticated than ever, using multiple channels to search for and purchase the items they need. Retailers are continually looking for ways to offer shoppers a frictionless shopping experience: a shopper journey that is easy and inspirational, that seamlessly and conveniently integrates online resources, mobile apps, and the store, that allows shoppers to find all products quickly, that offers instant support, and that features relevant and timely offers and information. Indoor positioning allows shoppers and store staff to receive directions to products or to receive location-based notifications. It allows retailers to engage customers in a more meaningful way, and to use location data analytics to measure marketing impact and assess store operations. Indoor positioning can deliver extraordinary value to retailers. Retailers who want to enjoy these benefits of indoor location services need a reliable, accurate, and affordable indoor positioning system. Until recently, they had to settle for systems that required them to deploy additional, often battery-powered, devices in their stores, that offered questionable performance with low accuracy and high network latency, and that were cumbersome to install and maintain.

With Philips indoor positioning system, retailers can enjoy instant, real-time, hyper-accurate positioning to less than half a meter, and orientation simply by using Philips' high-quality and energy-efficient LED lighting. Expected benefits are:

- **Shopper convenience:** Indoor positioning can make a shopper's journey more enjoyable and efficient, with features such as wayfinding, "show me where I am," optimal shopping routes, location-specific information, and "come help me."
- **Shopper engagement:** Engaged shoppers stay in store longer, enjoy the experience more, and often spend more. Retailers can engage shoppers with location-based promotions, information, and notifications, and can offer social experiences such as surveys, reviews, and games.
- **Staff and store efficiency:** Indoor positioning can optimize a retailer's efficiency through wayfinding, dynamic routing for faster order picking, and location-based staff instructions and service support.

Data mining context:

Given the data provided by deployed pilots in real-world shops, the project aims to employ existing and develop tailored data mining techniques that will generate data services, customer insights and help with optimization tasks such as:

- Improved store layouts, promotional displays and product placements using shoppers behavioral patterns
- Shopping route optimization
- Identification of shopping trends and cross-selling opportunities
- Tailored offers through a combination of onsite behavioral analysis and web analytics

Job requirements:

We are looking for candidates who meet the following requirements:

- a solid background in Computer Science with specialization in data science, applied data mining/machine learning or related areas (demonstrated by a relevant PhD);
- have a strong interest in applied data science research;
- have data mining software development skills at least in one language, e.g. R, Python, Java;
- being enthusiastic about working on the changing use cases in retail analytics;
- background in retail analytics is a plus;
- good communication skills in English, both in speaking and in writing
- good communication skills in Dutch is a plus

The Postdoc will join the Data Mining group at the Department of Computer Science and will spend be appointed at the closely collaborate and spend significant time within the Data Science team of Philips Lighting.. He or she is expected to:

- perform scientific research in the domain described
- collaborate with other researchers in this project
- present results at leading international conferences in the field
- publish results in scientific journals
- participate in activities of the group and department, at both sites
- be willing to work at two locations in Eindhoven (TU/e campus and Philips HTC)
- transfer knowledge to internal specialists at Philips Lighting and assist in guiding (project-related) MSc graduation projects.

Conditions of employment:

We offer:

- A full time temporary appointment for a period of 1 year with competitive salary. Possible extensions will be discussed as the project progresses.
- Tight collaboration of academia with industry with access to real data and domain expertise.
- Strong collaboration ties with several research groups in Europe and world-wide.
- Healthy travel funding for presenting your work at the leading conferences.
- Support for your persona development and career planning.
- A broad package of fringe benefits, e.g. excellent technical infrastructure, child daycare and excellent sports facilities, extra holiday allowance (8%, May), and end-of-year bonus (8.3%, December).

Application:

The applications should be sent to prof. dr. M. Pechenizkiy by e-mail: m.pechenizkiy@tue.nl and consist of the following parts:

- Cover letter explaining your motivation and qualifications for the position;
- Detailed Curriculum Vitae, including list of publications;
- A copy or a link to your PhD thesis. If you have not completed it yet, please explain your current situation;
- Links to key publications and developed software (e.g. GitHub) if any;
- Names of at least two referees.

Selected candidates will be invited first for a Skype interview and then for onsite visits to TU/e and Philips Lighting. The selection process will start on 16 August 2016 and will continue until the position is filled. The position is immediately available. The start date is flexible. Ideally, the successful candidate would start in mid September already.