

JOB

# INTERNSHIP: IMPLEMENTATION OF SECURE SPECTRAL CLUSTERING

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LOCATION	EDUCATION TYPE	TYPE	HOURS A WEEK
Den Haag	university (wo)	Internship and graduation project	Fulltime - 40

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## WHAT WILL YOU BE DOING?

Data clustering is an important problem with many applications in Machine learning, Computervision, and Signal processing. The object of clustering is to divide a dataset into natural groups of similar items. Spectral clustering treats the data clustering as a graph partitioning problem, where similar items are connected. This type of clustering typically leads to cluster rings, which are e.g. used for finding biomarkers for health applications. This is different than the common k-means clustering algorithm, which will find compact data clusters. When the involved data is sensitive, like for most health applications, one would like to find secure solutions, e.g. by encrypting private inputs before performing the clustering algorithm. Since the involved clustering algorithm, which involves computing eigenvalues of matrices, is not easily translated to the encrypted domain, it is important to learn how fast such a 'secure spectral clustering' solution would perform.

## WHAT DO WE REQUIRE OF YOU?

We are looking for a computer science or mathematics student, who is goal-oriented, has good analytical and communication skills and able and willing to implement our foreseen solution.

## WHAT CAN YOU EXPECT OF YOUR WORK SITUATION?

TNO is an independent research organisation whose expertise and research make an important contribution to the competitiveness of companies and organisations, to the economy and to the quality of society as a whole. Innovation with purpose is what TNO stands for. With 3000 people we develop knowledge not for its own sake but for practical application. To create new products that make life more pleasant and valuable and help companies innovate. To find creative answers to the questions posed by society. We work for a variety of customers: governments, the SME sector, large companies, service providers and non-governmental organisations. Working together on new knowledge, better products and clear recommendations for policy and processes. In everything we do, impact is the key. Our product and process innovations and recommendations are only worth something if our customers can use them to boost their competitiveness.

## WHAT CAN TNO OFFER YOU?

You want to work on the precursor of your career; a work placement gives you an opportunity to take a good look at your prospective future employer. TNO goes a step further. It's not just looking that interests us; you and your knowledge are essential to our innovation. That's why we attach a great deal of value to your personal and professional development. You will, of course, be properly supervised during your work placement and be given the scope for you to get the best out of yourself. Naturally, we provide suitable work placement compensation.

## **HAS THIS VACANCY AROUSED YOUR INTEREST?**

Then please feel free to apply on this vacancy! For further questions don't hesitate to contact us.

**Contactpersoon:** Thijs Veugen

**Phone number:** +31(0)88-86 67314

**Note that applications via email and third party applications are not taken into consideration.**

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**JOB ALERT**