

## PhD-position in Computational Microbiology

### Title

Rapid diagnosis of drug resistant TB infections

### Project leader

Thomas Abeel

Delft Bioinformatics Lab – Pattern Recognition and Bioinformatics – Department of Intelligent Systems  
Faculty of EEMCS, Delft University of Technology (TU Delft)

### Job description

Despite treatment options, TB is killing 1.5 million people each year, the vast majority in developing nations. Current diagnostics often take several weeks or months, which is too long to save the lives of the patients or to prevent further transmission. This project collaborates with Dr. Pym of the K-RITH research institute in Durban South-Africa to develop an innovative rapid diagnostic that accurately identifies currently undiagnosable TB infections, i.e. mixed and drug resistant infections. This will be done by computationally identifying markers that are indicative of these infections in genomic data which are then used to design the diagnostic using existing sequencing technology.

Your objectives in this project are to identify novel drug-resistance conferring mutations, to create a predictive model for drug resistance and mixed infections in TB and to explore the options to turn these insights into a prototype point-of-care molecular diagnostic. We have a collection of sequencing and meta-data from >8000 diverse TB strains. We now have the unique opportunity to leverage these data to make a global societal impact. You will integrate public and private data sets to associate mutations with phenotypes, such as drug resistance, with state-of-the-art computational approaches.

### Requirements

The ideal candidate has an Msc degree in bioinformatics or alternatively a degree in computer science or (micro-)biology with strong affinity or experience in the complementary field. He/she must be able to work effectively in a multidisciplinary team. The candidate shares our view that communication skills are important, as is the ability to interact with peers, students and technical staff.

- Programming, algorithm development and scripting experience are desirable
- Wet-lab experience is a plus
- Experience in microbial genomics is a plus

### Information and application

For more information about this position, please contact Dr. T. Abeel ([t.abeel@tudelft.nl](mailto:t.abeel@tudelft.nl)). To apply, please e-mail a detailed CV (including grades and English certification if applicable), cover letter and at least two personal letters of recommendation. Please submit your full application by June 1, 2016 to [t.abeel@tudelft.nl](mailto:t.abeel@tudelft.nl). More information about the section: <http://bioinformatics.tudelft.nl/> and the project leader: <http://www.abeel.be/>

### Conditions of employment

TU Delft offers an attractive benefits package, including a flexible work week and the option of assembling a customised compensation and benefits package. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities.

As a PhD candidate you will be enrolled in the TU Delft Graduate School. TU Delft Graduate School provides an inspiring research environment; an excellent team of supervisors, academic staff and a mentor; and a Doctoral Education Programme aimed at developing your transferable, discipline-related and research skills. Please visit [www.phd.tudelft.nl](http://www.phd.tudelft.nl) for more information.