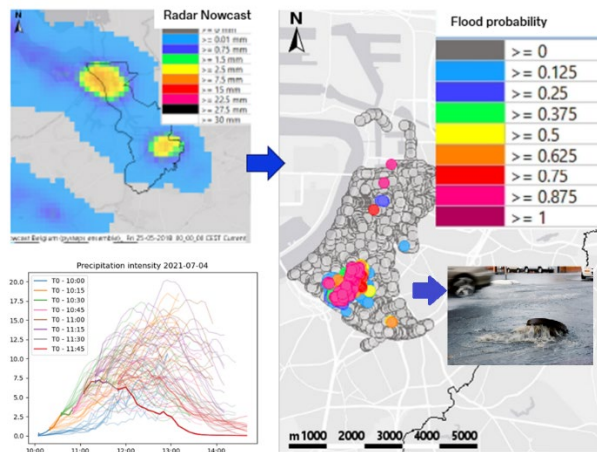


## Fully Funded Oversea Thesis/Internship Opportunity: Enhancing Urban Drainage Modelling through Deep-Learning Approach

Deltares, the Netherlands & A\*STAR, Singapore - 2024 Intake – Application deadline 31 January 2024

Deltares, in collaboration with A\*STAR (Agency for Science, Technology and Research) in Singapore, is excited to offer a unique opportunity for Master students to do part of their thesis or an internship in Singapore. We invite applications for a project aimed at "Enhancing Urban Drainage Modelling through a Deep-Learning Approach."



### Project Overview:

Urban pluvial flood modelling is challenging due to the complex urban landscape and drainage processes. Due to the quick response times of urban areas to rainfall, urban flood forecasting requires rapid models that ideally also have some level of accuracy. This can not be achieved by our conventional models. Therefore, the main question of this project is: How to provide timely flood warnings in cities in response to increased flood risks due to climate change? This project will contribute to this topic with a focus on developing **high-resolution, deep learning** enhanced urban drainage models to improve flood forecasting and provide early warnings.

### Role & Responsibilities:

Research on Deep-Learning methods, such as LSTM or GNN methods for urban surrogate models, and/or physics-informed machine learning methods

Collaborate with supervisors from Deltares (in the Netherlands) and A\*STAR (in Singapore), gaining expertise in urban flood nowcasting and deep learning technology.

### Background and Eligibility:

Final year M.Sc. student enrolled a Master's program related to Hydrology, Water Resources, Environmental Engineering, or a closely related field, wanting to go more into programming and deep-learning methods.

Eligibility to receive study credits from their university for participating in this internship or thesis project.

Note: This opportunity is funded by the Singapore International Pre-Graduate Award (SIPGA) and is intended primarily for students studying for the first time in Singapore. Singaporeans, Singapore

Permanent Residents and International students studying/who have studied in Singapore tertiary institutions are not eligible.

**Internship Highlights:**

Location: Singapore

Funding: Fully funded by the Singapore International Pre-Graduate Award (SIPGA)

Duration: 4 months (aligned with academic requirements)

**Application Process:**

The supervisors will help the student to submit funding application to SIPGA application portal and apply for student VISA in Singapore (if approved).

**How to apply:**

Please send you application to Deltares supervisors Xiaohan Li ([xiaohan.li@deltares.nl](mailto:xiaohan.li@deltares.nl)) and Ruben Imhoff ([ruben.imhoff@deltares.nl](mailto:ruben.imhoff@deltares.nl) ) before 31 January 2024.