Data-driven methods in application to flood defence systems monitoring and analysis

Pyayt, A.L.


General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (http://dare.uva.nl)
Acknowledgements

First of all I would like to express my sincere thanks to my supervisor Peter Sloot. I would like to thank you for all the support you have given me. Many thanks for the advices and coordination of the research activities.

I especially thank my daily supervisor Valeria Krzhizhanovskaya for real daily support. Without your constant support the tough tasks of preparation of papers and reports would have been even tougher. I thank you sincerely for encouraging me to constantly pursue excellence in my work. Without your support, preparation of this manuscript would have been impossible.

I also thank the Siemens LLC Corporate Technology department (especially Martin Gitsels, Bernhard Lang, Vladimir Okulevich, and Alexander Loginov) and the University of Amsterdam for financial support.

This work was partially supported by the UrbanFlood project, grant agreement #248767. I especially thank Bernhard Lang (Siemens LLC), who invited me to participate in the UrbanFlood project.

For supporting the data analysis, I thank Ilya Mokhov, Alexey Kozionov, and Victoria Kusherbaeva (all from Siemens LLC, Russia).

I thank Alexandra Vasilieva, Artem Ozhigin, Dmitry Bogdanov (all from Siemens LLC, Russia) for their support in developing the artificial intelligence component.

I also thank Denis Shevchenko and Oleg Mangutov (both from Siemens LLC, Russia) for their help combining physical modelling and data-driven methods (for their collaboration within the IJkdijk 2012 experiments and preparation of the overall concept of combination.

I sincerely thank Natalia Melnikova (University of Amsterdam, the Netherlands) for her help combining physical modelling (Virtual Dike) and data-driven methods.

I also thank Rob Meijer, Nico Pals, and Jeroen Broekhuijsen (all from TNO, the Netherlands); Marian Bubak, Bartosz Balis, and Marek Kasztelnik (all from Cyfronet, Poland); Jonathan Simm, Alexandra Topple, and Mark Morris (all from HR Wallingford, the United Kingdom) and to the whole UrbanFlood team for the fruitful collaboration. I really enjoyed time spent with you.

I thank Andre Koelewijn (Deltares, the Netherlands), Erik Peters (Alert Solutions, the Netherlands), Rob van Putten (Waternet, the Netherlands), Philipp Heidinger (GTC Kappelmeyer, Germany), Henk Wiering (Landustrie Sneek BV, the Netherlands), Harry Bos (Volker Wessel Telecom, the Netherlands), and Theo van Pul (Waterschap, the Netherlands) for providing data and support with the data analysis.

Part of this work was performed within the “All-in-one Sensor Validation Test” (AIOSVT) of the IJkdijk development program. Stichting IJkdijk is formed by Deltares, NV NOM, STOWA, TNO, the Dutch business community and Sensor Universe (formerly the IDL foundation). The development programme of Stichting IJkdijk is funded by the Ministry of Economics, Agriculture and Innovation, the Ministry of Infrastructure and
Environment, Samenwerkingsverband Noord Nederland, the Province of Groningen, water barrier managers, STOWA and the affiliated companies under them.

I am grateful to all co-authors of joint publications, I also thank the reviewers and editors of the conference proceedings and journals who helped to improve the published materials and as a result this manuscript.

I also thank the scientific committee for the critical remarks that helped to improve the manuscript.

I thank Christiaan Erdbrink (University of Amsterdam, the Netherlands) for supporting my preparation for the PhD defence.

I also thank Brechtje Schipper and Petra Best (both from University of Amsterdam, the Netherlands) for support with formalities.

Finally, I sincerely thank my family for supporting me during my PhD studies.