Salar Haghighatafshar

Ph.D. | Founder & CEO of Watrix AB

Education History

LUND UNIVERSITY, SWEDEN

Ph.D. in Water and Environmental Engineering | 2019

M.Sc. in Water and Environmental Engineering | 2012

Employment History

PROJECT MANAGER

SWEDEN WATER RESEARCH | 2023 - 2024

I have had the primary responsibility for two projects: firstly, Sweden Water Research's contribution to Mistra InfraMaint phase II, which focuses on climate adaptation of the city's stormwater drainage system; secondly, the R&D collaboration on the use of X-band radar in the Öresund region.

RESEARCH FELLOW AND LECTURER

LUND UNIVERSITY | 2019 - Ongoing (AS ADJUNCT LECTURER)

I am investigating how today's urban water infrastructure can respond to climate change and urbanization challenges with respect to planning, design and management. As a research fellow, I am responsible to conduct research within the field of urban water management, plan and lead new research projects, and supervise master's thesis and Ph.D. students. I am also the coordinator and the main lecturer in the course "Urban Storm Water Management" (VVAN30) at Lund University, LTH.

DOCTORAL CANDIDATE

LUND UNIVERSITY | 2014 - 2019

My research project aimed to evaluate blue-green solutions for urban stormwater management with regard to the determination of the hydraulic and treatment capacity of individual systems as well as their contribution to the overall functionality of the urban infrastructure in a holistic perspective.

RESEARCH ENGINEER

LUND UNIVERSITY | 2012 - 2014

As a research engineer, I was responsible to design and run experiments at pilot- and laboratory-scales, analyze samples, treat data, and author scientific articles for journal publications concerning wastewater treatment and anaerobic digestion processes.

CIVIL ENGINEER | DESIGN & MANAGEMENT

IRANIAN CENTRAL OIL FIELDS COMPANY | 2006 - 2010

My responsibility involved designing various structures as well as production and verification of technical documents, drawings and calculation according to relevant codes and standards. I also worked with description and cost estimation of projects for invitation to tender (ITT).

Personal Profile

I hold a Ph.D. degree and work as a project manager focusing on the enhancement of urban water planning and design paradigm in urban drainage to face the challeneges of an uncertain future. I am also interested in the application of AI and Machine Learning techniques in the field of urban drainage.

Contact Details

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Researcher Identifiers

0000-0002-8640-2769 (ORCID)
Q-3843-2018 (Web of Science Researcher ID)
Google Scholar

h-index (Google): **11** *h*-index (Scopus): **8**

Language Skills

- English [Fluent in speaking & writing]
- Swedish [Fluent in speaking & writing]
- Turkish [Fluent in speaking & writing]
- Persian (Farsi) [Mother tongue]
- Azerbaijani [Mother tongue]

Digital Skills

- MIKE Zero
- MIKE+
- MIKE Flood
- Python
- GIS (ArcMap, ArcGIS Pro)
- AutoCAD

Project Management

PROJECT LEADER | SUPERVISOR

Mistra InfraMaint II (Project 1.A): Climate adaptation of urban stormwater systems

Funded by Mistra | 2022 - 2027

TASK MANAGER | SUPERVISOR

REsilient WAter Innovation for Smart Economy [REWAISE]

Funded by EU HORIZON 2020 | 2020 - 2025

WORK PACKAGE LEADER

Multifunctional blue-green infrastructure - optimizing socio-cultural and environmental aspects

Funded by FORMAS | 2019 - 2023

PROJECT LEADER

Towards intelligent infrastructure planning: Can Machine Learni be used to optimize blue-green stormwater infrastructure?

Funded by ÅForsk Foundation | 2021 - 2022

TASK MANAGER

Future City Flow, Steps I, II & III

Funded by VINNOVA | 2015 - 2021

PROJECT LEADER

What rainfall events can be managed in the Eco-City of Augustenborg?

Funded by Richert Foundation | 2015 - 2017

TASK MANAGER

Sustainable Urban Flood Management

Funded by FORMAS | 2015 - 2018

PROJECT LEADER

Feasibility of nature-based stormwater solutions in urban pluvial flood management

Funded by Richert Foundation | 2018 - 2020

Selected Publications

PEER-REVIEWED ARTICLES

- Roth, S., Söderberg, L., Aspegren, H., **Haghighatafshar, S.** (2024) The compound impact of rainfall, river flow and sea level on a watercourse through a coastal city: Methodology in making. *City and Environment Interactions*, 23, 100153.
- **Haghighatafshar, S.**, Hallinger, E., Espinoza, D., Al-Rudainy, B. (2024) An innovative method for estimating settling velocity of particles in stormwater using absorbance measurements and modelling. *Water Practice & Technology*, 19(5), 1810-1821.
- Mottaghi, M., Nordström, J., **Haghighatafshar, S.**, Jönsson, K., Kärrholm, M., Sternudd, C. (2023) Caring for Blue-Green Solutions (BGS) in Everyday Life: An Investigation of Recreational Use, Neighborhood Preferences and Willingness to Pay in Augustenborg, Malmö. *Land*, 12(2), 336.
- Laster Grip, I., **Haghighatafshar, S.**, Aspegren, H. (2021) A methodology for the assessment of compound sea level and rainfall impact on urban drainage networks in a coastal city under climate change. *City and Environment Interactions*, 12, 100074.
- **Haghighatafshar, S.**, Becker, P., Moddemeyer, S., Persson, A., Sörensen , J., Aspegren, H., Jönsson, K. (2020) Paradigm shift in engineering of pluvial floods: From historical recurrence intervals to risk-based design for an uncertain future. *Sustainable Cities & Society*, 61, 102317.
- **Haghighatafshar, S.**, Yamanee-Nolin, M., Klinting, A., Roldin, M., Gustafsson, L.-G., Aspegren, H., Jönsson, K. (2019) Hydroeconomic optimization of mesoscale blue-green stormwater systems at the city level. *Journal of Hydrology*, 578, 124125.
- **Haghighatafshar, S.**, Yamanee-Nolin, M. & Larson, M. (2019) A physically based model for mesoscale SuDS – an alternative to large-scale urban drainage simulations. *Journal of Environmental Management*, 240, pp. 527-536.
- **Haghighatafshar, S.**, Nordlöf, B., Roldin, M., Gustafsson, L.-G., la Cour Jansen, J., Jönsson, K. (2018) Efficiency of blue-green stormwater retrofits for flood mitigation - Conclusions drawn from a case study in Malmö, Sweden. *Journal of Environmental Management*, 207, 60-69.
- Kjerstadius, H., **Haghighatafshar, S.**, Davidsson, Å. (2015) Potential for nutrient recovery and biogas production from blackwater, food waste and greywater in urban source control systems. *Environmental Technology*, 36(13), 1707-1720.

BOOK CONTRIBUTION(S)

- **Haghighatafshar, S.**, Aspegren, H., Jönsson, K. Remarks on efficiency of blue-green stormwater systems - Augustenborg, Malmö in focus in the book entitled The Eco-city Augustenborg - experiences and lessons learned, Editors: Monika Månsson & Bengt Persson, pp. 204-213; 2021, Arkus Publications. (In English)

DOCTORAL DISSERTATION

- **Haghighatafshar, S.** Blue-green stormwater systems for citywide flood mitigation: Monitoring, conceptualization, modeling, and evaluation. Doctoral thesis at Lund University, Sweden (2019).

Academic/Educational Supervision

DOCTORAL CANDIDATE(S)

- **Roth, Sara** (2022 - ongoing) Method development for the adaptation of urban drainage infrastructure to climate change.
- **Takil, Mina** (2020 - 2022) Application and assessment of ultrafiltration membrane for the treatment of urban runoff in rain-water harvesting systems.

MASTER'S THESES

- **V. Karlsson** (2023) Metodik för framtagande av konsekvenskartor för klimatanpassad dagvattenplanering
- **E. Hallinger** (2022) Development of a new methodology for the quantification of settling velocity of urban runoff particles in stormwater ponds using UV-absorbance and CFD
- **Z. Nasser** (2022) Omvandling av en estetisk damm till ett dagvattenmagasin + möjligheter, påverkan och alternativa lösningar
- **S. Olsson/L. Söderberg** (2021) Modelling the impact of heavy rainfall on a natural water course flowing through an urban area in a coastal region (Trelleborg, Sweden)
- **M. Svensson** (2021) Assessment and classification of blue-green elements based on their urban runoff management capacity
- **E. Ekwu** (2021) Modeling blue-green stormwater measures using nonlinear reservoirs
- **I. Laster Grip** (2020) The performance of a coastal urban drainage system under climate change. Case study: Trelleborg
- **J. Schmidt** (2018) Evaluation and sensitivity analyses of different rainfall-runoff models for green roofs
- **T. Grönvall/L. Ek** (2018) Avrinningskoefficienten – dess relation till regnintensitet och bidragskoefficienten utifrån fallstudier
- **K. Eliasson** (2018) Bedömning av vattenkvaliteten i det öppna dagvattensystemet i Augustenborg
- **C. Thomas** (2017) A case study of runoff coefficients for urban areas with different drainage systems
- **J. Hallerth/J. Haeggblom** (2016) Kompakta öppna dagvattenlösningar i urban miljö - Skyfallshantering i området Husensjö i Helsingborg
- **A. Fransson** (2016) Utveckling av avrinningsmodell för gröna tak betraktade som linjära och icke-linjära reservoarer
- **D. Almqvist** (2015) Evaluering av öppna dagvattensystem i Helsingborg vid kraftig nederbörd
- **M. Maberana Bashide** (2015) Modeling of Käppala Waste Water Treatment Plant - Evaluation of the Influence of Storm water to the Treatment Process

Academic Services

I have reviewed manuscripts for:

JOURNAL OF ENVIRONMENTAL MANAGEMENT Elsevier	SCIENCE OF THE TOTAL ENVIRONMENT Elsevier
JOURNAL OF WATER PROCESS ENGINEERING Elsevier	SUSTAINABLE CITIES AND SOCIETY Elsevier
URBAN WATER JOURNAL Taylor and Francis	WATER PRACTICE AND TECHNOLOGY International Water Association (IWA)
WATER MDPI	RESOURCES MDPI
INTERNATIONAL JOURNAL OF DISASTER RISK REDUCTION Elsevier	ARCHITECTURE - CIVIL ENGINEERING - ENVIRONMENT (ACEE) Silesian University of Technology