

AGILE 2023

'Spatial data for design'

PROGRAMME BOOKLET



2023

AGILE 2023
'Spatial Data for Design'

organiser
TU Delft

sponsors
esri
CGI

date
13-16 June 2023

location
Delft, The Netherlands

website
<https://agile-online.org/>

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FOREWORD

Dear participants in the AGILE 2023 conference,

A warm welcome in Delft for the 26th AGILE conference! This year's conference theme is 'Spatial data for design' to emphasize links between GI Science and various design activities, such as addressing data needed for spatial planning, and also spatial data used in the preparation and evaluation of various designs of human created objects; such as buildings, roads, dykes, parks, city (plans).

This year's conference attracted researchers, developers, lecturers, students, and practitioners in all facets of Geo-Information Science and Technology and their applications to present ongoing research, showcase products, network with colleagues from Europe and the rest of the world, and find out about the latest developments in the field.

Together we will enjoy 15 parallel oral presentation sessions, two keynote sessions, a poster session, best (one full and one short) paper and best poster sessions, as well as 7 pre-conference workshops. The full papers will be published in the AGILE GIScience Series (Copernicus Publishers), the short papers will be published by the same publisher, and poster paper track ready for the Conference at the AGILE2023 website. After the hard work, the social program should allow for networking with colleagues, and students in relaxed setting.

The details about the sessions and events are described on the conference website and in this booklet.

We would like to thank the authors for their submissions, the reviewers for the constructive comments and fair evaluations

providing a solid basis for the selection, and our colleagues from the local and scientific organising committees for the pleasant teamwork in the preparation of AGILE2023. Finally we would like to thank our sponsors, esri and CGI, for enabling to put the cherries on the cake!

Enjoy AGILE 2023!

On behalf of the local and scientific organising committees,

Bastiaan van Loenen & Peter van Oosterom

PROGRAMME OVERVIEW

DAY 1

Tuesday 13 June 2023

X TU Delft

8:30 Registration

Foyer

9:00 Workshops 1 to 5

12:30 Lunch

Foyer

13:30 Workshops 6 to 10

17:00 End workshops

18:00-20:00 Ice breaker @ Vakwerkhuis

sponsored by



MAP

See map on page 26 under MAPS.

WORKSHOPS OVERVIEW

Morning workshops 1 to 5

9:00-12:30

Workshop 1:

Body & Mind

How can GI science advance the value of city-level and nationwide Digital Twins? Organised by EuroSDR

Workshop 2:

Rhythm A

Urban places and regions in GIScience – concepts, methods and challenges. Organised by UNL

Workshop 4:

Rhythm B

GeoAI with ArcGIS. Organised by esri

Workshop 5:

Dance A

Women in Copernicus – Equity in Copernicus ecosystem survey results. Organised by WiC

Afternoon workshops 6 to 10

13:30-17:00

Workshop 6:

Body & Mind

Geospatial Education 5.0: New Paradigms for Geospatial Training and Education. Organised by Bochum University of Applied Science, Twente University, TU Delft

Workshop 8:

Rhythm A

25th ICA Workshop on Map Generalisation and Multiple Representation. Organised by ICA.

Workshop 10:

Rhythm B

Digital Serious Games: Toward a Design Framework. Organised by TU Eindhoven

PROGRAMME OVERVIEW

DAY 2 Wednesday 14 June 2023

X TU Delft

8:30	Registration	Foyer
9:00	S1: Plenary opening	
10:30	Break	Foyer
11:00	S2a: Accessibillity & trips S2b: Health	
12:30	Lunch	Foyer
13:30	S3a: Mobility modelling S3b: Visualization & map reading	
15:00	Break	Foyer
15:30	S4a: Geo-info theory S4b: Map creation & use	
17:00	End	
17:30/18:00	Social event	

MAP

Highlighted spaces in orange for day 2. See larger map on page 26 under MAPS.

SESSIONS OVERVIEW

Session 1: Plenary opening

Theatre Hall

09:00 Opening by prof. Dick van Gameren

09:05 Keynote by prof. Jörg Blankenbach

10:05 Poster pitches

Sessions 2

11:00-12:30

S2a, Accessibility & trips

Theatre Hall

Moderator: Edward Verbree

Eva Nuhn, Kai Hamburger and Sabine Timpf, Urban sound mapping for wayfinding - A theoretical approach and an empirical study¹

Molly Asher, Yannick Oswald, and Nick Malleon, Predicting Pedestrian Counts using Machine Learning

Hoda Allahbakhshi, Joris Senn, Nicola Maiani and Alexandra Georgescu, Spatial Accessibility Assessment of Homecare Workers to the Older Population in the City of Zurich

Nir Fulman, Maria Marinov, and Itzhak Benenson, Exploring Non-Routine Trips Through Smartcard Transaction Analysis

S2b, Health

Rhythm A & Rhythm B

Moderator: Justine Blanford

Falko Krügel and Stephan Mäs, A Web-Application for Measuring Spatial Accessibility in Health Planning

Nils B. Tjaden and Justine I. Blanford, ENDIG: Interactive Geovisualization of Surveillance Systems for Notifiable Diseases in Europe

Néstor DelaPaz-Ruíz, Ellen-Wien Augustijn, Mahdi Farnaghi, and Raul Zurita-Milla, Spatiotemporal domestic wastewater variability: Assessing implications of population mobility in pollutants dynamics
Lorenzo Gianquinteri, Daniele Oxoli, Enrico Gianluca Caiani and Maria Antonia Brovelli, Land use influence on ambient PM2.5 and ammonia concentrations: Correlation analyses in the Lombardy region, Italy

¹ *highlighted papers are full papers*

Sessions 3

S3a, Mobility modelling

Moderator: Carlos Granell

13:30-15:00

Theatre Hall

Reza Arabsheibani, Ehsan Hamzei, Kimia Amoozandeh, Stephan Winter and Martin Tomko, From Floorplan to Navigation Concepts: Automatic Generation of Text-based Games

Yiyu Wang, Jiaqi Ge, and Alexis Comber, A pedestrian ABM in complex evacuation environments based on Bayesian Nash Equilibrium

Qilin Ren, Pengxiang Zhao and Ali Mansourian, Modeling the choice of shared micro-mobility services using XGBoost machine learning algorithm

Dana Kaziyeva, Petra Stutz, Gudrun Wallentin, Martin Loidl, Agent-based simulation model of cyclists and pedestrians at a regional scale

S3b, Visualization&map reading

Moderator: Rob Weibel

Rhythm A & Rhythm B

Angela Schwering, Jakub Krukar, Jana Seep and Yousef Qamaz, Individualization in Spatial Behaviour and Map Reading

Suzan Evers, Gamze Z. Dane, Pauline E. W. van den Berg, Alexander K. A. J. Klippel, Timon Verduijn, Theo A. Arentze, Designing healthy public spaces: A participatory approach through immersive virtual reality

Simon Schröder, Jan Stenkamp, Michael Brüggemann, Benjamin Karic, Judith A. Verstegen, and Christian Kray, Towards dynamically generating immersive video scenes for studying human-environment interactions

Laura Wenclik and Guillaume Touya, Where do people look at during multi-scale map tasks?

Sessions 4

15:30-17:00

S4a, Geo-info theory

Theatre Hall

Moderator: Simon Scheider

Eleni Tomai, Margarita Kokla, Christos Charcharos and Marinou Kavouras, Does spatial thinking ability relate to performance when using web-mapping services? A survey with digital natives

Franz-Benjamin Mocnik, Data and Coherence Theories of Truth – Examples From a Data-Driven Geographical Information Science

Meilin Shi, Kitty Currier, Zilong Liu, Krzysztof Janowicz, Nina Wiedemann, Judith Versteegen, Grant McKenzie, Anita Graser, Rui Zhu, and Gengchen Mai, Thinking Geographically about AI Sustainability

René Westerholt, Studying critical values for global Moran's I under inhomogeneous Poisson point processes

S4b, Map creation & use

Rhythm A & Rhythm B

Moderator: Martijn Meijers

Adrian Sarbach, Thierry Weber, Katharina Henggeler, Luis Lutnyk and Martin Raubal, Evaluating and Comparing Airspace Structure Visualisation and Perception on Digital Aeronautical Charts

Yuhao Jiang, María-Jesús Lobo, Sidonie Christophe, and Christophe Jouffrais, Semi-automated Pipeline to Produce Customizable Tactile Maps of Street Intersections for People with Visual Impairments

Phil Hüffer, Auriol Degbelo, and Eftychia Koukouraki, Designing Search Engines for Interactive Web-based Geovisualizations

Arne Vogt, Johannes Flacke, Karin Pfeffer, Fenna Imara Hoefsloot, Jane Strugar Kolesnik and Johannes Schnell, Development of an inclusive Mapping Application in a Co-Design Process.

Social events

free of charge

3 options:

1. City of Delft Tour
2. TU Delft backstage tour
3. TU Delft Library Mapping Archive

PROGRAMME OVERVIEW

DAY 3	Thursday 15 June 2023	X TU Delft
	9:00 S5: Plenary	
	10:00 Break	Foyer
	10:30 S6: Tutorials	
	12:00 Lunch	Foyer
	12:45 S7: Plenary AGILE Annual Assembly	
	13:45 S8a: Remote sensing S8b: Disaster mapping S8c: COVID-19	
	15:15 Break	Foyer
	15:30 S9a: Spatial analysis S9b: Geo-sensors & VGI S9c: Geo-education	
	17:00 Poster vote deadline	
	17:00 Drinks and Conference dinner	X restaurant

MAP

Highlighted spaces in orange for day 3. See larger map on page 26 under MAPS.

SESSIONS OVERVIEW

Session 5: **9:00-10:00**
Plenary **Theatre hall**
Keynote by prof. Chrit Lemmen and Dr. Eva-Maria Unger, Global developments in land administration

Tutorials / sessions 6 **10:30-12:00**
Tutorial 1 **Theatre Hall**
S6a, T1: Geosimulation using fields and agents, Organised by Utrecht University

Tutorial 2 **Body & Mind**
S6b, T2: The Open Source Spatial Analytical tools with python, Organised by University of Glasgow

Tutorial 3 **Photo Studio**
S6c, T3: Knowledge Footprints - Knowledge mapping of people and publications, Organised by Twente University

Session 7: **12:45-13:45**
plenary AGILE Annual Assembly **Theatre hall**
Moderators: Sabine Timpf and Rob Lemmers

Sessions 8 **13:45-15:15**
S8a, Remote sensing **Photo Studio**
Moderator: Jing Yao

Raphael Zürcher, Jiayan Zhao, Alvaro Lau Sarmiento, Benjamin Brede and Alexander Klippel, Advancing Forest Monitoring and Assessment Through Immersive Virtual Reality

Nikita Murin, Alexander Knoch and Evelyn Uemaa, Detection of small-scale landscape elements with remote sensing

Renato Stopic, Eduardo Dias, Maurice de Kleijn and Eric Koomen, Satellite parking: a new method for measuring parking occupancy

Hendrik M. Würz, Kevin Kocon, Barbara Pedretschler, Eva Klien, and Eva Eggeling, A Scalable AI Training Platform for Remote Sensing Data

S8b, Disaster mapping

Body & Mind

Moderator: Carsten Keßler

Simon Groß, Benjamin Herfort, Sabrina Marx and Alexander Zipf, Exploring MapSwipe as a Crowdsourcing Tool for (Rapid) Damage Assessment: The Case of the 2021 Haiti Earthquake

Carolina Pereira Marghidan, Maarten van Aalst, Justine Blanford, Genito Maure, and Tatiana Marrufo, Extreme heat alerts and impacts across Mozambique 2016 - 2022: gathering evidence from media articles

Caroline K. Kioko and Justine I. Blanford, Malaria in Kenya during 2020: malaria indicator survey and suitability mapping for understanding spatial variations in prevalence and risk

S8c, COVID-19

Theatre hall

Moderator: Juha Oksanen

Innocensia Owuor and Hartwig H. Hochmair, Use of SafeGraph visitation patterns for the identification of essential services during COVID-19

Adel Al-Huraibi, Sherif Amer, and Justine I. Blanford, Cycling to get my vaccination: how accessible are COVID-19 vaccination centers in the Netherlands?

Niloufar Pourshir Sefidi, Amin Shoari Nejad, and Peter Mooney, An investigation of the effects of lockdowns and COVID-19 vaccinations in Ireland

Ellen-Wien Augustijn, Rosa Aguilar Bolivar, and Shaheen Abdulkareem, Using Machine Learning to drive social learning in a Covid-19 Agent-Based Model

Session 9

15:30-17:00

S9a, Spatial analysis

Theatre Hall

Moderator: Claire Ellul

Raphaël Bres, Verónika Peralta, Arnaud Le-Guilcher, Thomas Devogele, Ana-Maria Olteanu Raimond and Cyril de Runz, Analysis of cycling network evolution in OpenStreetMap through a data quality prism

Anna Brauer, Ville Mäkinen, and Juha Oksane, Human mobility tracks as FAIR data: Designing a privacy-preserving repository for GNSS-based activity tracking data

Flavia Lopes, Jorge Gil, and Ioanna Stavroulaki, Simplified geodata models for integrated urban and public transport planning

Denis Reiter, Mathias Jehling, and Robert Hecht, Benefits of using address-based dasymetric mapping in micro-level census disaggregation

S9b, Geo-sensors and VGI

Photo Studio

Moderator: Raul Zurita-Milla

Vasileios Miliadis, Shahin Sharifi Noorian, Alessandro Bozzon and Achilleas Psyllidis, Is it safe to be attractive? Disentangling the influence of streetscape features on the perceived safety and attractiveness of city streets

Tahmin Sitab, Oleksandr Karasov, and Alexander Knoch, Exploring Estonian Forests and Urban Green Spaces: A Cultural Ecosystem Services Mapping Approach Using Flickr Photographs

Per-Ola Olsson, Hugo Bergman, and Karl Piltz, Exploring the potential to use in-between pixel variability for early detection of bark beetle attacked trees

Robert L. Voûte, Hessel Prins, and Bart-Peter Smit, Comparison of low-cost techniques for digital cultural heritage preservation of an original Egyptian temple

S9c, Geo-education

Body & Mind

Moderator: Ali Mansourian

Bastiaan van Loenen, Hendrik Ploeger, Noor van Everdingen, Kristian Cuervo, Jessica Monahan, Julia Pille and Carmel Verhaeghe, Active teaching and learning in GI sciences: lessons learned from the BSc. course Open Urban Data Governance

Nick Bearman, Rongbo Xu, Patrick J. Roddy, James D. Gaboardi, Qunshan Zhao, Huanfa Chen, and Levi Wolf, Developing capacitated p-median location-allocation model in the spot library to allow UCL student teacher placements using public transport

Sibe van den Beukel, Edward Verbree, Peter van Oosterom, Visualizing of the below-ground water network infrastructure

PROGRAMME OVERVIEW

DAY 4 Friday 16 June 2023

BK | Faculty of Arch.

9:00 S10: Best Short Papers

10:15 Break

10:35 S11 (Fred Toppen session): Best Full Papers (esri award) + Best Poster award

12:15 S12: Closing

13:00 Lunch

Berlage Rooms

14:00 End

MAP

Highlighted spaces for day 4. See larger map on page 27 under MAPS.

SESSIONS OVERVIEW

Session 10

Best Short Papers

Moderator: Rob Lemmens

9:00-10:15

Berlage Rooms

Nan Cui, Nick Malleson, Vikki Houlden and Alexis Comber, The impact of the COVID-19 pandemic on the dynamics of topics in urban green space

Apeksha Tare, Merten Nefs, Eric Koomen and Erik Verhoef, Mapping Logistics Development in the Netherlands

Irada Ismayilova and Sabine Timpf, Semantic Identification of Urban Green Spaces: Forest

Session 11 (Fred Toppen session)

Best Full Papers (esri award) + Best Poster award

Moderator: Sabine Timpf

10:35-12:15

Berlage Rooms

Paul Mattes, Rico Richter and Jürgen Döllner, Detecting Road Damages in Mobile Mapping Point Clouds using Competitive Reconstruction Networks

Enkhbold Nyamsuren, Haiqi Xu, Eric J. Top, Simon Scheider and Niels Steenbergen, Semantic complexity of geographic questions - A comparison in terms of conceptual transformations of answers

Ioannis Dardavesis, Edward Verbree and Azarakhsh Rafiee, Indoor localisation and location tracking in indoor facilities based on LiDAR point clouds and images of the ceilings

Award ceremony

Session 12

Closing

Moderator: Bastiaan van Loenen

12:15-13:00

Berlage Rooms

AGILE 2024 announcement

PROGRAMME OVERVIEW

EVENINGS

Day 1 - Tuesday 13 June 2023

18:00 Ice breaker @ Vakwerkhuis



Day 2 - Wednesday 14 June 2023

17:30/18:00 Social event

18:00 City of Delft Tour

17:30 TU Delft backstage tour

17:30 TU Delft Library Mapping Archive

Day 3 - Thursday 15 June 2023

17:00 Drinks & conference dinner

X Café

On Wednesday evening, there are social events. These events are free of charge. You can choose one of these social events and register for it on Tuesday and Wednesday until 16:00. Registration for the social events will be at the registration desk at a first come first serve basis.

Be aware that these social events differ from time frame and meeting points. The following pages explain the events in more detail.

Tuesday 13 June: ice breaker

Vakwerkhuis

📍 Professor Snijdersstraat 2, 2628 RA, Delft

🌐 <https://vakwerkhuis.com/cafe/>

18:00-20:00



Wednesday 14 June: social events

Overview options:

1. City of Delft Tour
2. TU Delft backstage tour
3. TU Delft Library Mapping Archive

Option 1: City of Delft Tour

18:00-19:30

Start: Nieuwe Kerk (New Church)

📍 Markt 80, 2611 GW, Delft

Discover Delft with a guide

The historic centre of Delft is excellent to explore on foot. Listening to the enthusiastic guide, you will be amazed by the many special stories hidden behind the facades. While strolling through the city centre, the city comes to life and from now on you will look at the buildings and monuments with different eyes. After the walk, Delft will no longer hold any secrets from you.

Option 2: TU Delft backstage tour

17:30-19:00

2 options: 'Architecture' and 'Living in the future'

Option 2A

Start: BK TU Delft / Faculty of Architecture and the Built Environment

📍 Julianalaan 134, 2628 BL, Delft

Backstage tour 'Architecture'

Are you interested in architecture and the history of the buildings at TU Delft? Or are you interested in how the campus has developed over the past 50 years? Then this tour is for you! During the architecture tour, a TU Delft guide will take you around the campus and its most iconic buildings. These are national monumental buildings of more than 100 years old, but also TU Delft's newest educational buildings. A great way to see and learn about architecture at TU Delft.

Option 2B

Start: The Green Village

📍 Van Den Broekweg 4, 2628 CR, Delft

Backstage tour 'Living in the future'

TU Delft's backstage tour 'Living in the future' takes you to TU's inhabited open-air laboratory. Here, knowledge and educational institutions, entrepreneurs, governments and residents of the Netherlands research, experiment and demonstrate their sustainable innovation together. A regulatory testing ground on TU Delft Campus with real residents!

Testing takes place at district, street and building level and work is carried out on the innovation challenges of today and tomorrow. The Green Village supports innovative parties in solving bottlenecks that stand in the way of scaling up their innovation, in order to get their product from idea to market.

Option 3: TU Delft Library Mapping Archive

17:30-19:00

Start: info desk inside TU Library

📍 Prometheusplein 1, 2628 ZC, Delft

In this tour we will start at the Praethuys, inside the Library. There we will start with a short presentation by Jules Schoonman on 'Allmaps'. Then we will show in three groups facets of the building. This guided tour will display the Library, the Museum Collection depot and the Trésor Collection depot.

EVENINGS



Thursday 15 June: drinks & conference dinner

Start: outside at X TU Delft, at the terrasse of X Café

📍 Mekelweg 8-10, 2628 CD, Delft



KEYNOTES

Jörg Blankenbach

Scan2BIM - From reality capturing to as-is BIM and digital twins of the built environment



The working method BIM promises the creation of a comprehensive information basis using semantically-rich 3D building models as single source of truth in the life cycle. However, in the course of the life cycle, data on the actual condition of the building becomes increasingly important. Accurate and high resolution geodetic reality capturing techniques, e.g. laser scanning, are already available today, but automatically processing the data for creating semantic as-is/as-built building models, in contrast, represents a major challenge. In the presentation, the challenges, and current approaches for this so called Scan2BIM will be shown, which can also be the basis for digital twins of the built environment.

Jörg Blankenbach received the diploma (Dipl.-Ing.) and doctoral (Dr.-Ing.) degrees in geodesy from the Technical University of Darmstadt (TU Darmstadt), Germany, in 2001 and 2006, respectively. From 2006 to 2012, he headed a research group on indoor positioning at the Geodetic Institute of TU Darmstadt. Since 2012, he is Professor and the Director of the Geodetic Institute and the Chair for Computing in Civil Engineering and Geo Information Systems at RWTH Aachen University. His research interests are indoor positioning, geo-sensor networks, and distributed geographic information systems (GIS), as well as 3D surveying and modeling of the built environment in the context of building information modeling (BIM) and digital twins. He is also involved in standardization in the context of BIM and GIS, among others at the German Institute for Standardization.

Chrit Lemmen and Eva-Maria Unger

Global developments in land administration



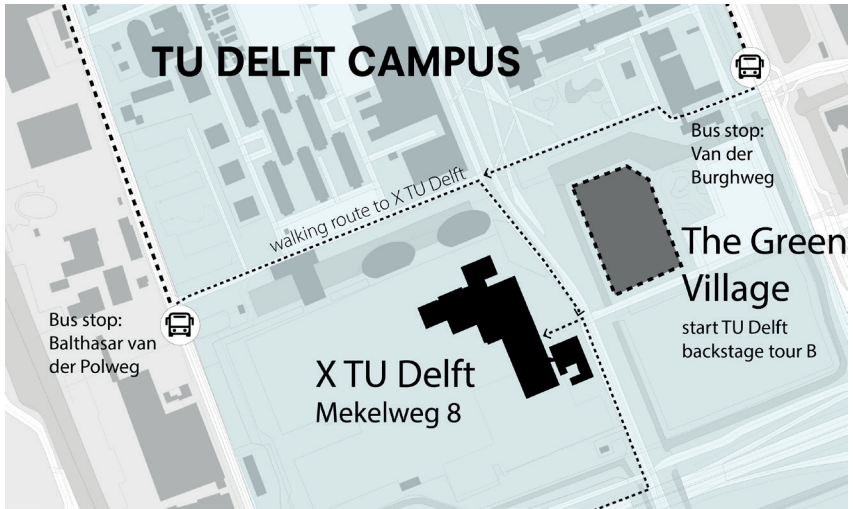
This keynote concentrates on spatial information that is used to administer land - land administration. It provides an overview of the latest developments in the land administration domain. Proceeding from how information on land is shared, re-used and accelerated in a standardised way to global policies and frameworks. The keynote also addresses issues such as adequate housing, sustainable agriculture and climate change and demonstrates the link of these issues to good land governance.

Eva-Maria Unger works with the international arm of the Netherlands national mapping, land registration and cadastral agency as a Senior Land Administration Advisor. She holds a MSc. in Geodesy and Geoinformation, and a PhD in Land Administration. Eva-Maria was chair of the FIG Young Surveyors Network and initiated the Volunteer Community Surveyors Program (VCSP) supporting the UN-Habitat GLTN's county-level implementation plans and programmes. Dr. Unger completed a secondment with UN-GGIM and is the director of OICRF. Christiaan Lemmen is Professor Emeritus of Land Information Modelling at the Faculty of GeoInformation Science and Earth Observation of the University of Twente in the Netherlands. He is co-editor of the ISO 19152 Land Administration Domain Model. He holds a PhD in land administration and a MSc in Geodesy from Delft University of Technology.

MAPS

X TU DELFT

📍 Mekelweg 8-10, 2628 CD, Delft



13 - 14 - 15 JUNE

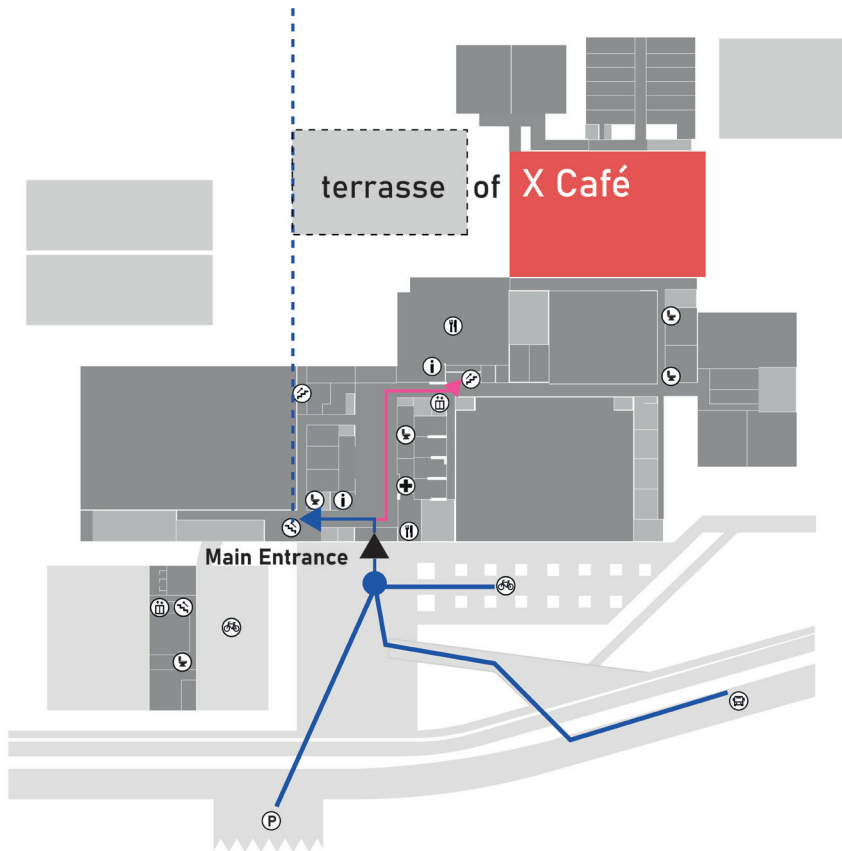


In **blue**: the **general access** to the building. The meeting point and registration are in the Foyer, which is when you go up to the first floor.

In **green**: rooms for the workshops and sessions on the left wing.

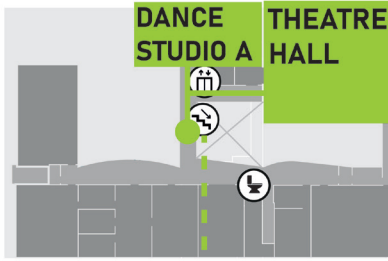
In **pink**: rooms for the workshops and sessions on the right wing of the building. For these rooms, *Body & Mind*, *Rhythm A* and *Rhythm B*, you need to go down to the entrance area and go up again near the X Café.

In **red**: the **X Café**. This is the place for the Conference dinner on Thursday.

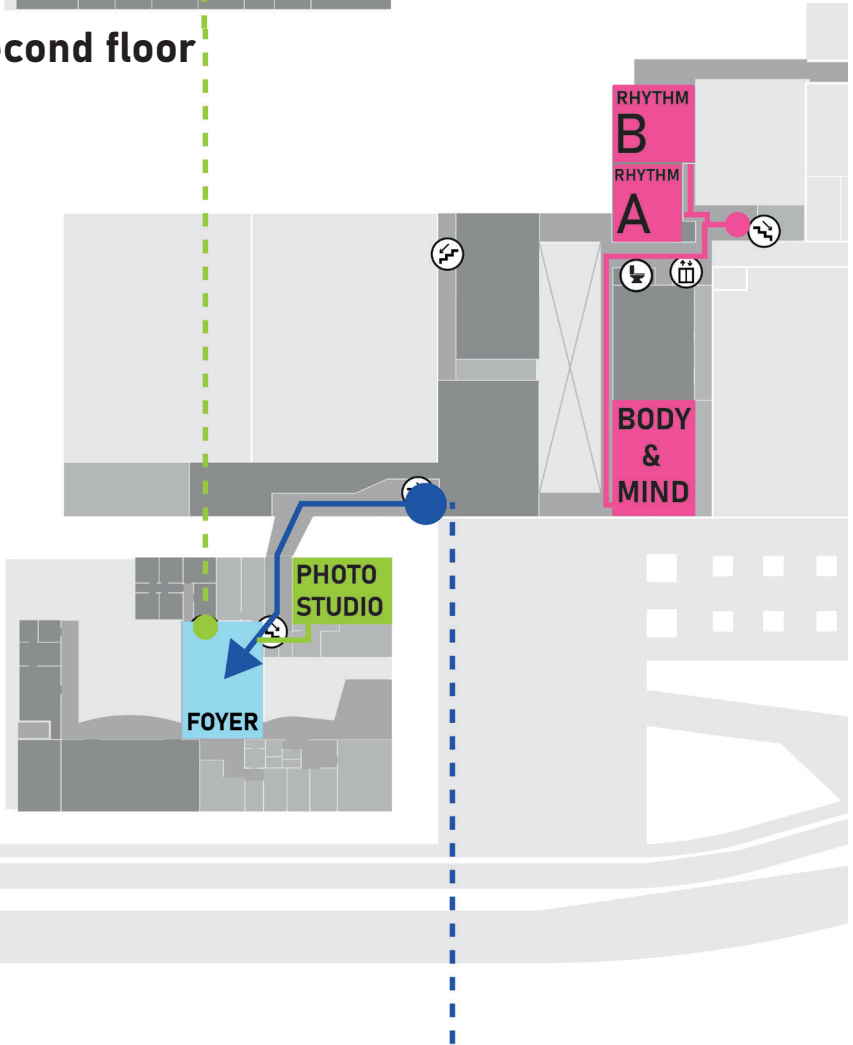


Ground floor



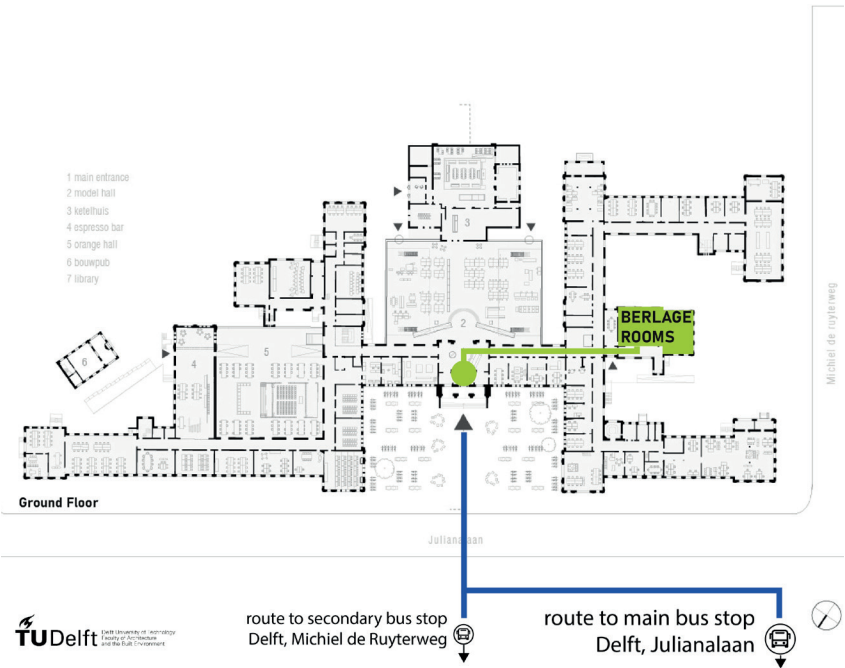


Second floor

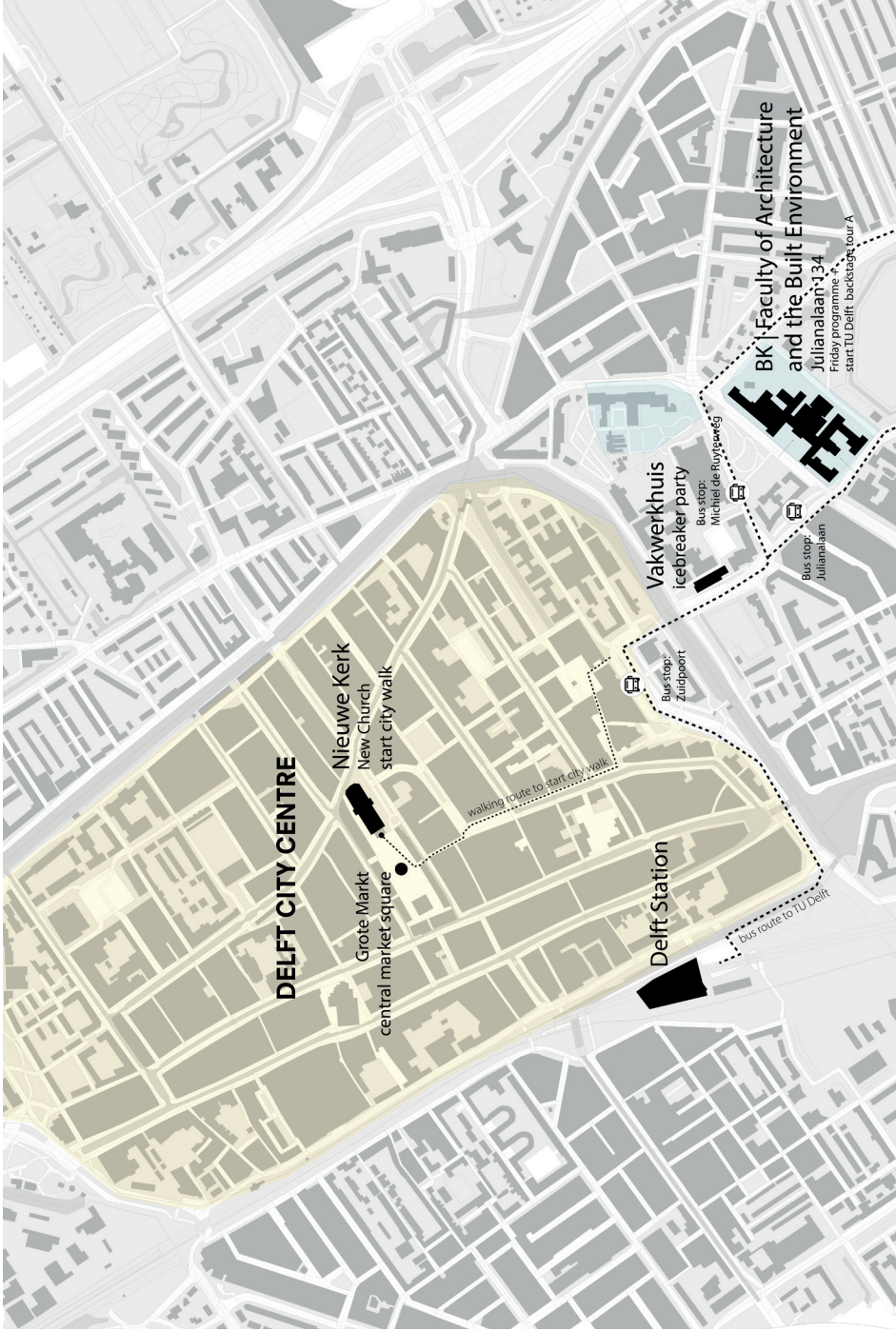


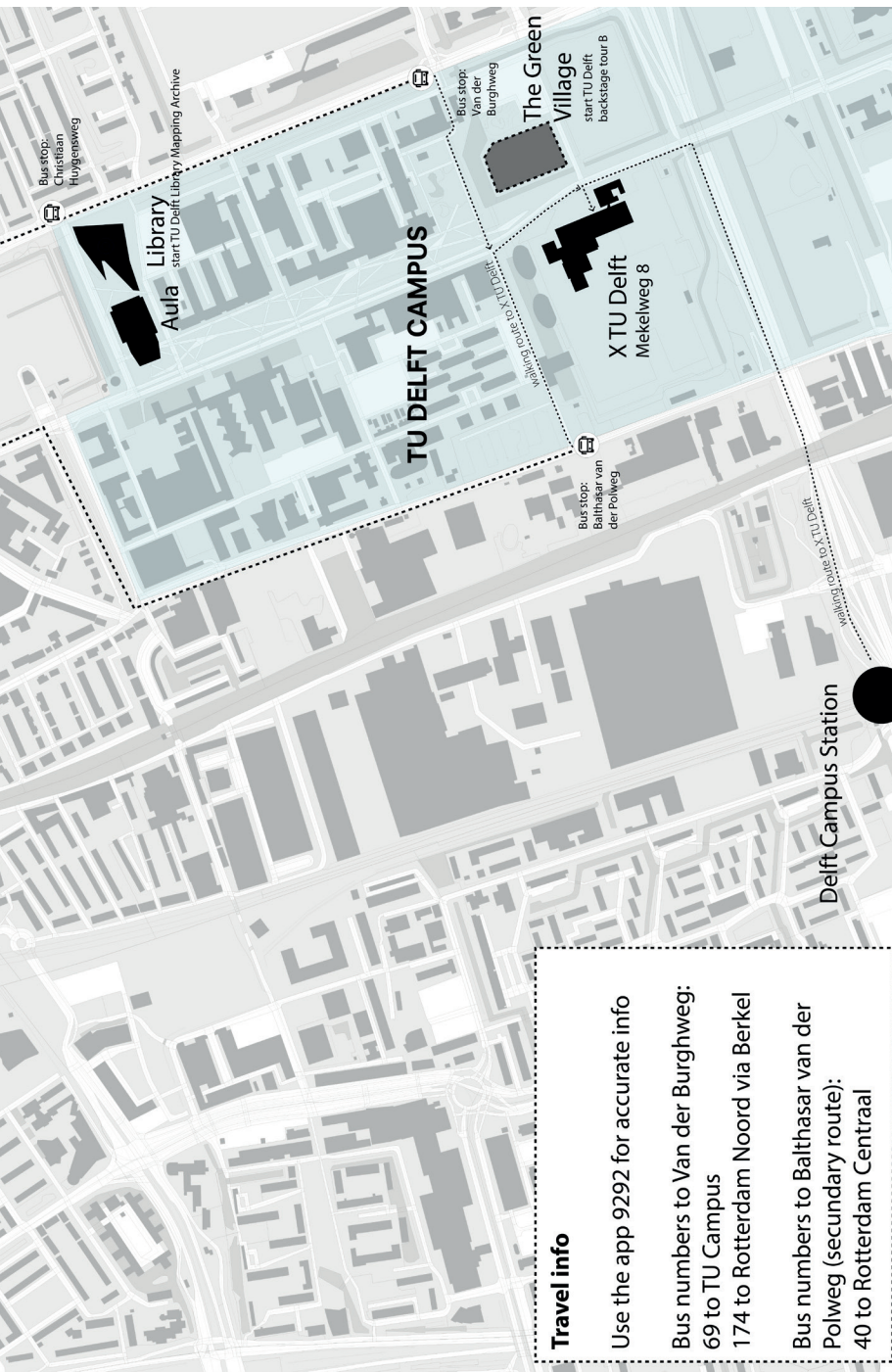
First floor

BK TU Delft / Faculty of Architecture and the Built Environment
📍 Julianalaan 134, 2628 BL, Delft



AGILE 2023 EVENT LOCATIONS





Travel info

Use the app 9292 for accurate info

Bus numbers to Van der Burghweg:
69 to TU Campus
174 to Rotterdam Noord via Berkel

Bus numbers to Balthasar van der
Polweg (secondary route):
40 to Rotterdam Centraal

PRACTICALITIES

WIFI ACCESS

Herewith the explanation for the wifi for the Agile event:

Wifi name: **agile2023**

How does guest wifi work?

1. SMS with your mobile phone the indicated keyword **agile2023** to phone number **7873** or **+316 3525 0006**.
2. You will immediately receive an SMS back containing your personal wifi username and password.
3. Click on the eduroam wifi network on your device and enter your username and password.

For **Android phones**, make sure the following settings are correct:

<EAP method> : PEAP

<identity/identity> : xxx@edu.nl (xxx = username received/received via SMS)

<password/password> : xxx (xxx = password received/received via SMS)

<CA certificate> : Don't validate

Click on: Connect

For **Apple devices**, choose 'Trust' when asked about a certificate.

TWITTER

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With the **#agileconf**

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TU Delft

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