

2<sup>nd</sup> December 2019

h.9.30-10.00 **Welcome and Introduction on GeoBIM**  
[Francesca Noardo]

## Part 1: 3D City models

h.10.00-11.00 **3D City models overview:**  
[Balázs Dukai & Tom Commandeur]

- Introduction and 3D city models overview
- effective use cases
- data and related standards (CityGML, CityJSON...)

h. 11.00-11.15 **Coffee Break**

h.11.15-11.45 **GeoBIM benchmark results: The support for CityGML within GIS (and other) tools (Task 3)**  
[Stelios Vitalis]

11.45-12.00 **Q&A / Discussion**

h.12.00-13.00 **Lunch**

## Part 2: Building Information Models (BIM)

h.13.00-14.00 **Building Information Models overview:**  
[Lorenzo Polia & Helga Tauscher]

- Introduction and BIM overview
- effective use cases
- data and related standards (Industry Foundation Classes)

h.14.00-14.30 **GeoBIM benchmark results: The support for IFC within BIM (and other) software (Task 1)**  
[Thomas Krijnen]

14.30-14.45 **Q&A / Discussion**

h. 14.45-15.00 **Coffee Break**

h. 15.00-15.15 **The world is not all CityGML and IFC: other Geo/BIM standards (LandInfra, gbXML, INSPIRE...)**  
[Anna Labetski]

h.15.15-15.45 **Workshop - Replicating the results for Task 3\***

h.15.45-16.30 **Workshop - Replicating the results for Task 1\***

h.16.30-17.30 **Conclusions: ideas towards integration**

3<sup>rd</sup> December 2019

h.9.00-9.10 **Welcome to the second day**  
[Francesca Noardo]

h.9.10-9.20 **The EuroSDR GeoBIM project**  
[Jantien Stoter]

## Part 3: GeoBIM use cases

h.9.20-10.15 **GeoBIM for building permission issuing**  
[Hasim Tezerdi & Francesca Noardo]

h.10.15-10.45 **GeoBIM for microclimate simulations**  
[Natasja van Heerden & Panagiotis Arapakis]

h. 10.45-11.00 **Coffee Break**

h.11.00-11.30 **GeoBIM for asset management**  
[Nicola Moretti & Claire Ellul]

h.11.30-11.45 **Stop copying your files: versioning for 3D city models**  
[Stelios Vitalis]

h.11.45-12.00 **Q&A / Discussion**

h.12.00-13.00 **Lunch**

h.13.00-13.30 **GeoBIM benchmark results: Options for geo-referencing IFC data (Task 2)**  
[Lars Harrie]

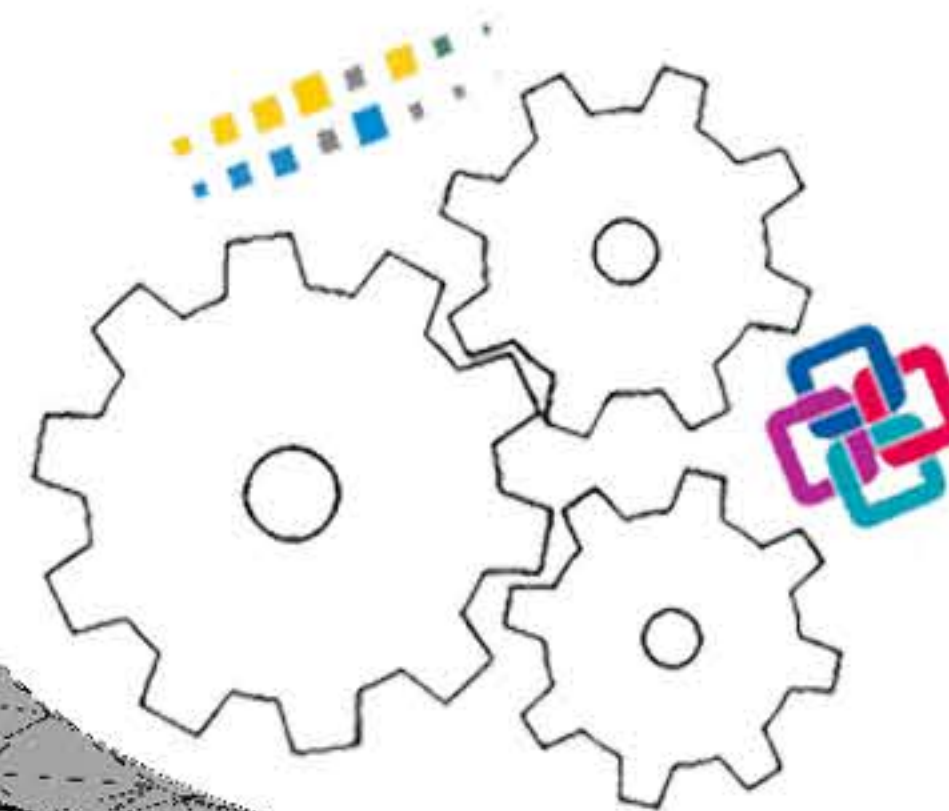
h.13.30-14.00 **Options for conversion: IFC to CityGML and CityGML to IFC (Task 4)**  
[Nebras Salheb]

h. 14.00-14.15 **Coffee Break**

h.14.15-15.00 **Workshop - Replicating the results for Task 2\***

h.15.00-15.45 **Workshop - Replicating the results for Task 4\***

h.15.45-16.00 **Conclusions, Visions & Next plans.**



<https://3d.bk.tudelft.nl/projects/geobim-benchmark/events.html>







### Francesca Noardo (TU Delft - 3D geoinfo, Delft NL)

Francesca is Postdoc in the 3D Geoinformation group at the TU Delft and research fellow in the Amsterdam Institute for Advanced Metropolitan Solutions (AMS) from 2018. She works towards the integration of geoinformation with BIM, envisaging the concrete employment of such technology for smart cities applications through open standard data models and technologies. She has a MSc degree in Architecture (Restoration and Enhancement) and PhD (2016) in the geomatics research field from the Politecnico di Torino (Italy) (2012). She is leading the 'EuroSDR GeoBIM project' and the ISPRS 'GeoBIM benchmark'. She is secretary in the ISPRS Working Group IV/2: 'Ontologies, Semantics, and Knowledge Representation for Geospatial Information'.

### Tom Commandeur (TU Delft - 3D geoinfo, Delft NL)

Tom completed a BSc in Technical Information Engineering in Amsterdam. After that he graduated the MSc Geomatics at TU Delft with a thesis on automated reconstruction of 3D city models. Using this experience he then worked as a Geo-Information specialist and software developer in a company applying Hydro-Informatics in solutions for the Dutch waterboards and European Commission projects within the frameworks of FP7 and Horizon2020. Currently he is working as a Scientific developer in the 3D Geoinformation group at TU Delft. In this role he develops open-source software used by Kadaster, RWS and in various research projects. In the past three years he has been focussed on the development of 3dfier, software to reconstruct 3D models of large areas. The software is currently used by Kadaster to create a 3D model of The Netherlands.



### Balázs Dukai (TU Delft - 3D geoinfo, Delft NL)

Balázs Dukai is a research software engineer at the 3D Geoinformation group of TU Delft. He spends most of his time on developing spatial data sets and software, particularly related to 3D city models. He has been involved with CityJSON since its beginning and he is one of the developers of cjo, the software for working with CityJSON. He is also interested in generating simple, yet useful data sets for large areas, such as the 3D BAG. Balázs studied geomatics engineering and landscape architecture, and his goal is to improve the quality of 3D geodata, making it more accessible to planners and designers.

### Stelios Vitalis (TU Delft - 3D geoinfo, Delft NL)

Stelios is a GIS software engineer who has developed GIS solutions related to the Greek Cadastre for 10 years and has worked as a short term consultant for the World Bank. He is currently a PhD candidate in the 3D Geoinformation group at TU Delft, working on the 4D representation of multi-scale 3D city models. He is the author of the CityJSON loader plugin for QGIS and has contributed to the 3D visualisation capabilities of QGIS. He is actively involved in the formulation of the CityJSON specification and working on the incorporation of versioning in 3D city models. He has experience with manipulating CityGML data through multiple tools and libraries, such as GDAL and libcitygml.



### Lorenzo Polia (Freelance Architect and BIM instructor - Torino, Italy)

Lorenzo Polia, Architect, graduate at the Politecnico di Torino, following the Master's Degree course in 'Architecture City Construction'. During his work experience as a freelance architect he collaborates with several architecture and engineering firms and international companies, improving his skills in the field of Building Information Modeling (BIM), actively participating in large-scale public projects such as hospitals, schools and stations. He is currently a Revit instructor, Revit MEP, Revit Structure, Dynamo and Naviswork at training centers, companies and professional studios.

### Thomas Krijnen (TU Delft - 3D geoinfo, Delft NL)

Thomas has a diverse background in architectural engineering, acoustics, computer graphics and software development. He is specialized in research and development for the construction industry. Currently he is a postdoctoral researcher at the 3D geoinformation group of the Delft University of Technology in the Netherlands. He is working on some of the geometrical challenges around interoperability of building information models. Thomas built an engaging community around a widely used open source project, IfcOpenShell.org. He is the owner of a consultancy company, AECgeeks.com. Prior, he worked as a scrum master managing highly diverse teams, while developing a state of the art WebGL viewer for a web-based collaboration platform at Gehry Technology, Los Angeles.



### Helga Tauscher (Dresden University of Applied Science, Germany)

Dr. Helga Tauscher received her PhD in Construction Informatics from TU Dresden and degrees in architecture from Weißensee Academy of Art Berlin and Dresden University of Applied Sciences. She was working as CAD/CAFM specialist in the elevator industry, as freelance artist, and as software developer for internet-based construction project management. She has researched topics around BIM at Bauhausuniversität Weimar, TU Kaiserslautern and National University of Singapore. Her current research interest revolves around graph-based transformation and integration of building models with other domains such as visualization and simulation models or geospatial data.

### Jordi van Liempt (TU Delft - MSc Geomatics, Delft NL)

Jordi is an MSc Geomatics student at TU Delft, with a background in Human Geography and Urban Planning. He is especially interested in the inner workings of 3D city models and the efficient (web) handling of 3D geoinformation. Currently, he carrying out his thesis that revolves around these topics. He is mostly working with CityJSON and has a wide variety of real-world application interests, with a focus on transportation.







### Anna Labetski (TU Delft - 3D geoinfo, Delft NL)

Anna Labetski is a PhD candidate in the 3D geoinformation group at TU Delft focusing on the generalisation of 3D city models. Research interests include transportation modelling, levels of detail, applications and metadata. Hailing from the small country of Canada, Anna got her start in human geography and eventually progressed into the world of GIS and now 3D geoinformation which included interacting with a vast variety of different standards.

### Jantien Stoter (TU Delft - 3D geoinfo, Delft, NL)

Prof dr Jantien Stoter is full professor 3D Geoinformation, at Department of Urbanism. Jantien's research interests are 3D geo-data technologies for urban applications, automated generalisation, geospatial information modelling and the integration of Geo and BIM. She obtained her PhD degree (3D Cadastre) in 2004, which was awarded with the Tienstra award (Royal Netherlands Academy of Arts and Sciences). For her research on 5D data modelling she received the prestigious Vidi award of the Netherlands Scientific Foundation (NWO). She also received a Starting Grant from the European Research Council for her proposal Urban Modelling in higher dimensions. Jantien combines her professorship with jobs as researcher at both the Kadaster and Geonovum. She is also a Principal Investigator at the AMS and vice-chair of the 3D Information Management Domain WG of the OGC.

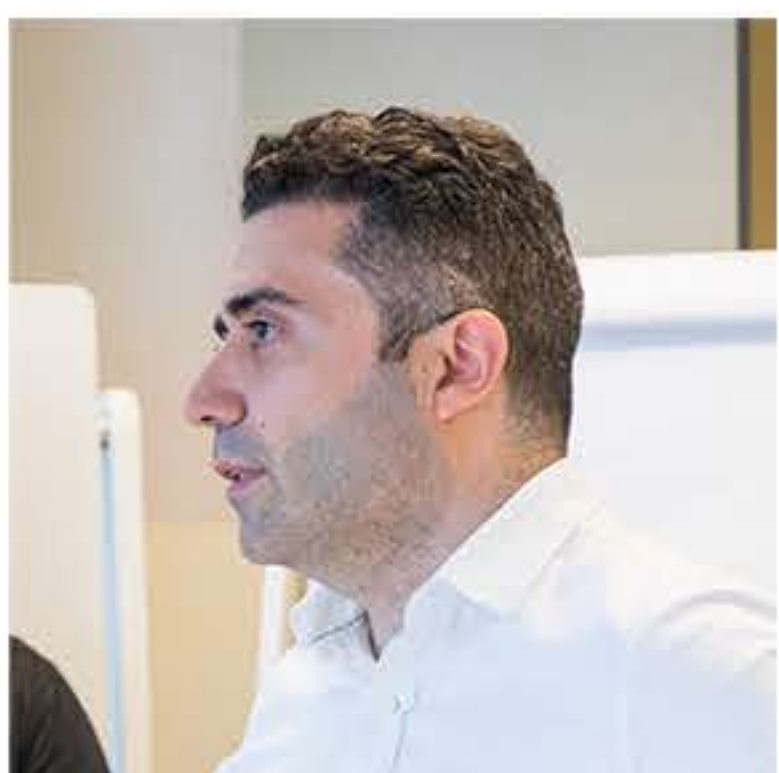


### Lars Harrie (Lund University - GIS Centre, Lund, Sweden)

Lars received a Master of Science in Geodesy from KTH, Stockholm, Sweden in 1993 and a PhD in Geographic information science from Lund University in 2001. Since 2006 he is working at the department of Physical Geography and Ecosystem Science as well as at the GIS Centre, Lund University. His main research interests are algorithms for processing and presenting geographic data, and methods for improving the national spatial data infrastructure. During recent years Lars has work in the field of digitalisation of the built environment processes, where GeoBIM is a central part.

### Claire Ellul (UCL - London, UK)

After graduating as an Electrical Engineer from the University of Malta, Dr. Claire Ellul worked as a Geographical Information Systems (GIS) consultant before joining academia. Having completed her PhD in 3D GIS in 2007, she is currently a Reader (Associate Professor) in the Department of Civil, Environmental and Geomatic Engineering at University College London, researching 3D GIS, GeoBIM (3D/4D GIS and Building Information Modelling integration) as well as the broader topic of spatial data usability and provenance.



### Hasim Tezerdi (Municipality of Rotterdam - Engineering department - NL)

Hasim has received a Master of Science in Engineering and Policy Analysis from TU-Delft, the Netherlands in 2011. Since 2012 he is working for the Municipality of Rotterdam. During the last years he has become a dedicated team member for the programme 'Digital City Rotterdam', which aims to build a digital twin of the city. He is project leader for the pilot '3D-permits', which is a pilot within the framework of the new Environment and Planning Act.

### Nicola Moretti (Politecnico di Milano - Milano, IT)

After graduating in Management of the Built environment at Politecnico di Milano, I worked in Facility and Asset Management field. In 2016 I joined the PhD in Architecture, Built Environment and Construction Engineering at Politecnico di Milano with a research project in digital built Asset Management. The research aims at reengineering traditional asset management business processes, through new information management capabilities offered by digital tools and approaches. In 2019 I have spent a visiting research period at University College London, collaborating to the research on GIS and BIM integration for Facility and Asset Management. During the PhD I collaborated to several research projects related to information management for use phase of the assets.



### Natasja van Heerden (TU Delft, MSC Geomatics - Delft, NL)

Natasja van Heerden is a Geomatics student, working on her Master thesis at TU Delft. Her work focuses on how 3D city model and BIM data can be integrated in order to improve the process of microclimate simulations, specifically how CityGML and IFC models can be automatically integrated and translated to the microclimate simulation software ENVI-met. Natasja has a Bachelor degree in Architecture, Urbanism and Building Sciences and did a minor in Sustainable Energy Technologies.

### Nebras Salheb (TU Delft, MSc Geomatics - Delft, NL)

My background is Architectural engineering, in which I had the experience of working with BIM models. in TU delft I did MSc Geomatics of the built environment. My graduation thesis is titled "Automatic Conversion of CityGML to IFC" in which I try to help in bridging the gap between the world of BIM and GIS.research projects related to information management for use phase of the assets.



### Panagiotis Arapakis (TU Delft, MSc Geomatics - Delft, NL)

Panagiotis studied Geomatics for the Built Environment in TU-Delft. He recently received his Master of Science (October 2019). In his master thesis, he examined the compatibility between the microclimate simulation software ENVI-met and CityGML, in order to achieve automatic data flow. Within the framework of this project he developed an interface that can read and write the required data. Panagiotis obtained his diploma in TUC (Technical University of Crete) where he studied Environmental Engineering, specializing in the energy field.