

Alex Donkers

Exploring the digital built environment

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Since I was a little kid...

... I've been fascinated about technology and the built environment. While building the biggest LEGO-cities in my parents' garage, my granddad taught me how to connect light bulbs with batteries.

15 years later, I'm combining my passion for tech and the city as a researcher at Eindhoven University of Technology. I've got a rock-solid motivation to create hyperconnected buildings and cities and make technology available for everyone.

Education

2020 **HPI, University of Potsdam**
Linked Data Engineering

2019 **PTV VISSIM**
Basic course & Dynamic Traffic Assignment

2019 **Aveta Business Institute**
LSSWB Lean Six Sigma White Belt

2017 - 2019 **Eindhoven University of Technology**
MSc. Construction Management & Engineering
Cum Laude (8.6/10)

2018 **Harvard University**
CitiesX: The Past, Present and Future City Life (9.4/10)

2015 **ESA**
Conflict management, Feedback, Time management and Meeting techniques

2015 **Kenneth Smit**
Certificate of Distinction: Expert in Acquisitions

2013 - 2017 **Eindhoven University of Technology**
BSc. Architecture, Building and Planning

2007 - 2013 **Commanderij College Sleutelbosch**
VWO, Nature & Technology and Nature & Health

Experience

2021 **TIAS Business School**
Visiting Lecturer Executive Master of Real Estate (MRE)

2019 - now **Eindhoven University of Technology**
PhD Candidate in SmartTWO, a KPN+TU/e collaboration

2019 **Sweco**
Graduate Intern Mobility and Data

2017 - 2019 **Eindhoven University of Technology**
Teaching Assistant Real-Estate Transformation

2011 - 2018 **Albert Heijn**
Team Leader

2016 - 2017 **VIRTUe**
Designing and building a smart and sustainable house at the Solar Decathlon 2018 in Dubai
Starred in Reuters, RTLZ, AD, ED, Financieel Dagblad, ...

2015 - 2016 **KIVI**
Board Member 'Bouw'

2015 - 2016 **CHEOPS, Study Association**
Full Time Board Member, Professional Relations

2015 - 2016 **Archilign**
Junior Architectural Designer

Research interests

Semantic web technologies
Digitalization in the built environment
Occupant-centric building performance
Semantic digital twins
Ontology development
Data federation and web applications
Open BIM
Sensors and IoT

Publications

Donkers, A., De Vries, B. & Yang, D. (2022). Creating Occupant-Centered Digital Twins Using the Occupant Feedback Ontology Implemented in a Smartwatch App. Semantic Web for Industrial Engineering: Research and Applications. Semantic Web Journal. IOS Press.

Donkers, A., Van Midden, J. & Yang, D. (2022). Parallel Intelligence in Semantic Digital Twins: An Interactive Decision-Support System for Indoor Comfort. 2nd Annual International Conference on Digital Twins and Parallel Intelligence.

Donkers, A., Yang, D., de Vries, B., Baken, N. (2022). Semantic Web Technologies for Indoor Environmental Quality : A Review and Ontology Design. Buildings. 12(10), 1522.

Donkers, A., de Vries, B., & Yang, D. (2022). Knowledge Discovery Approach to Understand Occupant Experience in Cross-Domain Semantic Digital Twins. In: P. Pauwels, M. Poveda-Villalón, & W. Terkaj (editors), Proceedings of the 10th Linked Data in Architecture and Construction Workshop, co-located with 19th European Semantic Web Conference (ESWC 2022) (p. 77-86).

Li, X., Yang, D., Yuan, J., **Donkers, A.** & Liu, X. (2022). BIM-enabled semantic web for automated safety checks in subway construction. *Automation in Construction*, 141, 104454.

Donkers, A., Yang, D., de Vries, B., & Baken, N. H. G. (2021). Real-time building performance monitoring using semantic digital twins. In M. Poveda-Villalón, & P. Pauwels (editors), LDAC 2021 Linked Data in Architecture and Construction: Proceedings of the 9th Linked Data in Architecture and Construction Workshop (p. 55-66). (CEUR Workshop Proceedings; Vol. 3081). CEUR-WS.org.

Donkers, A., Yang, D., & Viktorovic, M. (2020). Influence of driving style, infrastructure, weather and traffic on electric vehicle performance. *Transportation Research Part D: Transport and Environment*, 88, [102569].

Donkers, A., Yang, D., & Baken, N. H. G. (2020). Linked Data for Smart Homes: Comparing RDF and Labeled Property Graphs. In M. Poveda-Villalón, A. Roxin, K. McGlenn, & P. Pauwels (editors), LDAC 2020 Linked Data in Architecture and Construction: Proceedings of the 8th Linked Data in Architecture and Construction Workshop Dublin, Ireland, June 17-19, 2020 (p. 23-36). (CEUR Workshop Proceedings; Vol. 2636). CEUR-WS.org.

Donkers, A., Yang, D. & Viktorovic, M. (2020). Assessing battery electric vehicle energy consumption performance: the effects of driving style, road infrastructure, weather and traffic intensity. *Transportation Research Board 99th Annual Meeting*, Washington D.C.

Donkers, A., Quee, J., & de Vries, L. (2020). De invloed van de stedelijke omgeving en routekeuze op de actieradius van elektrische voertuigen. *Tijdschrift Vervoerswetenschap*, 2020-3.

Donkers, A., Quee, J.G. & De Vries, L.O. (2019). Het gebruik van stedelijke data om de actieradius en routekeuze van elektrische voertuigen te optimaliseren. *Colloquium Vervoersplanologisch Speurwerk*, Leuven.

Educational activities

Engineering Doctorate Projects

2021-2023 Sander de Meij
2021-2023 Farshad Hasanabadi
2021-2023 Giel Oosterbos

Master Graduation Projects

2022 Chiel van der Pas
2022 Jelle van Midden
2022 Sara Guendouz

2022-2023 **Systems Engineering**

Guest lecture

2022-2023 **Research and Development**

Tutor

2021-2022 **TIAS Business School**

Lecturer

2021-2022 **Research and Development**

Tutor

2021-2022 **Smart & Healthy Urban Environments**

Teaching Assistant

2019-2020 **Smart Cities**
Tutor

2019-2020 **Smart Urban Environments**
Teaching Assistant

2017-2019 **BAU studio**
Teaching Assistant

Academic activities and affiliations

2023 **HackMyCity Johannesburg**
Lecturer

2023-now **IEEE**
Member

2021 **AEC Hackathon Copenhagen**
Participant

2023 **LDAC2023**
Organisation

2023 **SSoLDAC2023**
Organisation

2022 **LDAC2022**
Program Committee Member

2020-now **W3C LBD CG**
Member

2020 **EWGT2020**
Reviewer

2016 **Shifting Perspectives Congress**
Organizer

2015 **Renovation & Transformation Symposium**
Organizer

2015 **CHEOPSx Debate Evenings**
Co-founder

2014 **Study trip to Berlin**
Organizer

Presentations

21-09-2022 **EAIIS Community Day**
Do you ever get distracted at work?

29-06-2022 **LDAC2022 Hersonissos**
Knowledge Discovery Approach to Understand Occupant Experience in Cross-Domain Semantic Digital Twins

- 11-10-2021 **LDAC2021 Belval**
Real-Time Building Performance Modeling using Semantic Digital Twins
- 16-11-2020 **Digital Twin Event KPN**
Digital Twins Everywhere
- 17-06-2020 **LDAC2020 Dublin**
Linked Data for Smart Homes: Comparing RDF and Labeled Property Graphs
- 05-02-2020 **Tilburg University**
Smart Cities symposium Tilburg
- 22-11-2019 **CVS Leuven**
Business meets innovation event
- 16-05-2017 **Dutch Technology Week Eindhoven**
Business meets innovation event
- 30-04-2017 **Solar Decathlon Dubai**
1st International Workshop for Solar Decathlon Middle East Dubai

Awards

- 2022 **LDAC2022**
Best paper award
- 2020 **Eindhoven University of Technology**
Best MSc thesis of the faculty of the Built Environment
- 2018 **AnArchi Architecture Award**
"Praised for the subtle use of colors and strong composition of an imaginary project called "Mapourika Observation Tower" won the Jury Prize awarded by A2 Studio."
- 2016 **24:UP Antwerp**
Runner up

Open science projects

- Building Performance Ontology**
<https://w3id.org/bop>
- Occupant Feedback Ontology**
<https://w3id.org/fofo>
- Occupant Property Taxonomy**
<https://www.github.com/AlexDonkers/opt>
- Building Assessment Ontology**
<https://alexdonkers.github.io/bao>
- Open Family Home**
<https://www.github.com/AlexDonkers/OpenFamilyHome>
- Open Flat**

<https://www.github.com/AlexDonkers/OpenFlat>

Open Smart Home

<https://www.github.com/AlexDonkers/OpenSmartHome>

Explored

Johannesburg, Pretoria
Lima, Huaraz, Paracas, Huacachina, Arequipa, Cuzco
Willemstad
Nice, Monaco, Èze, Arles, Montpellier, Perpignan, Dijon
Montreal, Toronto, Ottawa
Serekunda, Banjul, Tendaba
Réserve de Fathala
Bangkok, Chiang Mai, Pai, Surat Thani, Koh Pha-ngan, Khao Sok
Edinburgh
Luxembourg, Belval
Dubai
Copenhagen
Berlin, Cologne, Aachen
Kraków
Rome
Barcelona, Valencia
Prague
Pula, Rovinj, Poreč
Bruges, Leuven, Hasselt

Bulgaria, Portugal, Greece, Turkey

South-Africa

Peru

Curacao

France

Canada

Gambia

Senegal

Thailand

Scotland

Luxembourg

UAE

Denmark

Germany

Poland

Italy

Spain

Czech Republic

Croatia

Belgium