



Maxim Van de Wynckel

Date of birth: 10/03/1995 | **Nationality:** Belgian | **Gender:** Male | **Phone number:** (+32) 489861848 (Home) | **Email address:** me@maximvdw.be | **Website:** <https://maximvdw.be> | **Bluesky:** <https://bsky.app/profile/maximvdw.be> | **ORCID:** <https://orcid.org/0000-0003-0314-7107> | **LinkedIn:** <https://linkedin.com/in/maximvdw> | **Google Scholar:** <https://scholar.google.com/citations?user=NB6760YAAAAJ> | **GitHub:** <https://github.com/Maximvdw> | **Mastodon:** <https://mas.to/@maximvdw> | **Address:** Invalidenlaan 178/5, 1160, Oudergem, Belgium (Home)

ABOUT ME

I am a software engineer and researcher with a passion for interoperable and privacy-aware systems.

WORK EXPERIENCE

01/10/2019 – CURRENT Elsene, Belgium

UNIVERSITY TEACHING ASSISTANT AND RESEARCHER VRIJE UNIVERSITEIT BRUSSEL

6-year Ph.D grant on indoor positioning and interoperability. Teaching assistant for various Bachelor and Master courses.

Business or Sector Education | **Department** Department of Computer Science | **Address** Pleinlaan 2, 1050, Elsene, Belgium | **Email** maxim.van.de.wynckel@vub.be | **Website** <https://vub.be>

01/07/2019 – CURRENT Oudergem, Belgium

SOFTWARE ENGINEERING CONSULTANT MVDW-SOFTWARE

Freelance software development and consultancy. Projects spanning from web development to IoT and AI implementation in business processes.

Business or Sector Information and communication | **Address** Invalidenlaan 178/5, 1160, Oudergem, Belgium | **Email** maxim@mvdw-software.com | **Website** <https://mvdw-software.com>

01/07/2018 – 31/07/2018 Edegem, Belgium

SOFTWARE ENGINEER CHEMSTREAM BV.

Development of chemical database software.

Address Drie Eikenstraat 661, 2650, Edegem, Belgium | **Website** <https://chemstream.be>

01/03/2016 – 30/04/2016 Edegem, Belgium

SOFTWARE ENGINEER CHEMSTREAM BV.

Maintenance of chemical database search by substructures.

Address Drie Eikenstraat 661, 2650, Edegem, Belgium | **Website** <https://chemstream.be>

01/09/2015 – 30/09/2015 Edegem, Belgium

SOFTWARE ENGINEER CHEMSTREAM BV.

Development and maintenance of chemical database software.

Address Drie Eikenstraat 661, 2650, Edegem, Belgium | **Website** <https://chemstream.be>

01/04/2015 – 30/04/2015 Edegem, Belgium

SOFTWARE ENGINEER CHEMSTREAM BV.

Migration from Access database to Web-based chemical database software.

Address Drie Eikenstraat 661, 2650, Edegem, Belgium | **Website** <https://chemstream.be>

01/08/2014 – 31/08/2014 Edegem, Belgium

SOFTWARE ENGINEER CHEMSTREAM BV.

Development of PHP and MySQL based chemical database software.

Address Drie Eikenstraat 661, 2650, Edegem, Belgium | **Website** <https://chemstream.be>

01/02/2016 – 31/05/2016 Jette, Belgium

SOFTWARE DEVELOPER INTERNSHIP UZ BRUSSEL

Development of QR-code based appointment system. Google Fit integration for patients. Healthcare software development.

Address Laarbeeklaan 101, 1090, Jette, Belgium | **Website** <https://uzbrussel.be/>

01/10/2015 – 31/12/2015 Evergem, Belgium

SOFTWARE DEVELOPER INTERNSHIP BITPOWER BV.

eID cloud authentication Bachelor thesis preparatory training.

Address 9940, Evergem, Belgium | **Website** https://www.nieuwsblad.be/cnt/dmf20150604_01714431

01/08/2015 – 30/09/2015 Evergem, Belgium

SOFTWARE DEVELOPER BITPOWER BV.

eID cloud authentication and security penetration testing.

Address 9940, Evergem, Belgium | **Website** https://www.nieuwsblad.be/cnt/dmf20150604_01714431

01/07/2014 – 31/07/2014 Humbeek, Belgium

SOFTWARE DEVELOPER VDW-CONSULTING BV.

Web UI for print management software.

Address Dijkstraat 17, 1851, Humbeek, Belgium | **Website** <https://vdw-consulting.com/>

01/07/2013 – 31/08/2015 Humbeek, Belgium

SOFTWARE DEVELOPER VDW-CONSULTING BV.

File server deployment and print job submitting in C#.

Address Dijkstraat 17, 1851, Humbeek, Belgium | **Website** <https://vdw-consulting.com/>

● EDUCATION AND TRAINING

01/10/2019 – CURRENT Elsene, Belgium

PHD, COMPUTER SCIENCE Vrije Universiteit Brussel

Address Pleinlaan 2, 1050, Elsene, Belgium | **Website** <https://www.vub.be/en> | **Level in EQF** EQF level 8 |

Thesis Interoperable and Discoverable Indoor Positioning Systems

01/10/2018 – 01/07/2019 Elsene, Belgium

MASTER OF SCIENCE (MSC), APPLIED COMPUTER SCIENCE Vrije Universiteit Brussel

Parallelism, distributed systems, multicore programming (Java, Erlang and GPU with OpenCL), software security and Indoor navigation master thesis.

Address Pleinlaan 2, 1050, Elsene, Belgium | **Website** <https://www.vub.be/en> | **Final grade** magna cum laude |

Level in EQF EQF level 7 | **Type of credits** ECTS | **Number of credits** 60 | **Thesis** Indoor Navigation by Centralized Tracking

01/10/2016 – 01/07/2018 Elsene, Belgium

BRIDGING PROGRAMME, COMPUTER SCIENCE Vrije Universiteit Brussel

Bridging programme from professional bachelor to academic bachelor.

Address Pleinlaan 2, 1050, Elsene, Belgium | **Website** <https://www.vub.be/en> | **Type of credits** ECTS | **Number of credits** 60

01/10/2013 – 01/07/2016 Anderlecht, Belgium

BACHELOR (BA), APPLIED COMPUTER SCIENCE Erasmushogeschool Brussel

Software Security, Software Development (Java, C++, C#, Objective-C), Agile development. Received an award for best final work.

Address Nijverheidskaai 170, 1070, Anderlecht, Belgium | **Website** <https://www.erasmushogeschool.be/en> |

Final grade magna cum laude | **Level in EQF** EQF level 6 | **Type of credits** ECTS | **Number of credits** 180 |

Thesis eID IO - Applicatie Besturing

30/06/2013 Hoboken, Belgium

INDUSTRIAL ICT Don Bosco Hoboken

Address Salesianenlaan 1, 2660, Hoboken, Belgium | **Website** <https://www.donboscohoboken.be/>

LANGUAGE SKILLS

Mother tongue(s): **DUTCH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
FRENCH	B1	B1	B1	B1	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Research

Semantic interoperability | Web Semantic and Linked Data | Indoor robot navigation | Localization and Positioning

PUBLICATIONS

2024

Towards Distributed Intelligent Tutoring Systems Based on User-owned Progress and Performance Data

This paper proposes a decentralised approach to intelligent tutoring systems by storing learning progress and performance data in user-owned Solid Pods, enhancing learner autonomy and privacy.

Malaise, Y., Van de Wynckel, M., & Signer, B. (2024, May). Towards Distributed Intelligent Tutoring Systems Based on User-owned Progress and Performance Data. Proceedings of SoSy 2024 (Poster), 2nd Solid Symposium, Leuven, Belgium, May 2024.

Link <https://maximvdw.be/publications/2024/sosy2024yoshi/>

2024 **Discoverable and Interoperable Augmented Reality Environments Through Solid Pods**

In this paper, we propose a novel solution to store 3D manipulations in AR spaces within a Solid pod. Using this solution, multiple users can work together in the same environment while also ensuring interoperability between AR applications.

Van de Wynckel, M., & Signer, B. (2024, May). Discoverable and Interoperable Augmented Reality Environments Through Solid Pods. Proceedings of SoSy 2024 (Poster), 2nd Solid Symposium, Leuven, Belgium, May 2024. <https://events.vito.be/sosy2024>

Link <https://maximvdw.be/publications/2024/sosy2024maxim/>

2024 **FidMark: A Fiducial Marker Ontology for Semantically Describing Visual Markers**

In this publication, we propose an ontology called FidMark for semantically describing fiducial markers. This ontology is useful for AR and robotics applications to ensure interoperability between systems.

Van de Wynckel, M., Valadez, I., & Signer, B. (2024). FidMark: A Fiducial Marker Ontology for Semantically Describing Visual Markers. Proceedings of The Semantic Web (ESWC 2024), 235–250. https://doi.org/10.1007/978-3-031-60635-9_14

Links https://videlectures.net/videos/eswc2024_van_de_wynckel | <https://maximvdw.be/publications/2024/eswc2024/>

2023 **SemBeacon: A Semantic Proximity Beacon Solution for Discovering and Detecting the Position of Physical Things**

In this publication we propose the SemBeacon specification, which is a semantic beacon solution to discover and detect the position of physical things such as IoT devices, environments or services.

Van de Wynckel, M., & Signer, B. (2023). SemBeacon: A Semantic Proximity Beacon Solution for Discovering and Detecting the Position of Physical Things. Proceedings of the 13th International Conference on the Internet of Things, 9–16.

Link <https://maximvdw.be/publications/2023/iot2023/>

2023 **802.11 Management frames from a public location**

In this dataset, two separate datasets were recorded in a Belgian train station to collect 802.11 wireless management frames. The datasets were anonymised and contain data on the SSIDs, signal strengths and MAC addresses.

Vermunicht, B., Van de Wynckel, M., & Signer, B. (2023). 802.11 Management frames from a public location. <https://doi.org/10.5281/zenodo.8003771>

Link <https://maximvdw.be/publications/2023/vermunicht2023/>

2023 **Object Tracking on a Monopoly Game Board**

In this dataset, a Monopoly game was recorded from a first person perspective. The aim of this dataset is to conduct pawn and object tracking using computer vision algorithms.

Hoebeke, N., Van de Wynckel, M., & Signer, B. (2023). Object Tracking on a Monopoly Game Board. <https://doi.org/10.5281/zenodo.7990434>

Link <https://maximvdw.be/publications/2023/hoebeke2023/>

2022 **POSO: A Generic Positioning System Ontology**

In this publication we propose the POSO ontology, which is a positioning system ontology to semantically describe positioning systems, the data they produce and the environments in which these systems are deployed.

Van de Wynckel, M., & Signer, B. (2022). POSO: A Generic Positioning System Ontology. The Semantic Web – ISWC 2022, 231–247. https://doi.org/10.1007/978-3-031-19433-7_14

Links [https://openhps.org/publications/2022/5b3-Van de Wynckel-Video-MQ.mp4](https://openhps.org/publications/2022/5b3-Van%20de%20Wynckel-Video-MQ.mp4) | <https://maximvdw.be/publications/2022/iswc2022/>

2022

A Solid-based Architecture for Decentralised Interoperable Location Data

In this publication we propose a solution to decentralise location data and positioning systems in Solid pods using linked data.

Van de Wynckel, M., & Signer, B. (2022). A Solid-based Architecture for Decentralised Interoperable Location Data. Proceedings of the 12th International Conference on Indoor Positioning and Indoor Navigation (IPIN), CEUR Workshop Proceedings.

Links https://openhps.org/publications/2022/WiP65_MaximVandeWynckel.mp4 | <https://maximvdw.be/publications/2022/ipin2022/>

2021

Indoor Positioning Using the OpenHPS Framework

In this publication, we propose OpenHPS, an open source hybrid positioning system. We demonstrate how OpenHPS can be used to create indoor positioning systems.

Van de Wynckel, M., & Signer, B. (2021). Indoor Positioning Using the OpenHPS Framework. 2021 International Conference on Indoor Positioning and Indoor Navigation (IPIN), 1–8. <https://doi.org/10.1109/IPIN51156.2021.9662569>

Link <https://maximvdw.be/publications/2021/ipin2021/>

2021

OpenHPS: Single Floor Fingerprinting and Trajectory Dataset

In this dataset, we collected fingerprints of Wi-Fi access points and BLE beacons in a building. The fingerprints are collected in four directions and cover an entire floor.

Van de Wynckel, M., & Signer, B. (2021). OpenHPS: Single Floor Fingerprinting and Trajectory Dataset. <https://doi.org/10.5281/zenodo.4744380>

Link <https://maximvdw.be/publications/2021/dataset/>

2020

OpenHPS: An Open Source Hybrid Positioning System

In this technical report, we provide a technical overview of the OpenHPS framework. OpenHPS is a framework to design a wide range of hybrid positioning systems using TypeScript.

Van de Wynckel, M., & Signer, B. (2020). OpenHPS: An Open Source Hybrid Positioning System (WISE-2020-01). Vrije Universiteit Brussel. <https://doi.org/10.48550/ARXIV.2101.05198>

Links https://video.fosdem.org/2022/L/lightningtalks/Lt_openhps.webm | <https://maximvdw.be/publications/2020/openhps2020/>

2019

Master thesis: Indoor Navigation by Centralized Tracking

The goal of my Master thesis was to design an indoor navigation system that guides patients and visitors inside a hospital. The solution was designed to require minimal setup and interaction by both the hospital and users.

Van de Wynckel, M. (2019). Indoor Navigation by Centralized Tracking [Master's thesis, Vrije Universiteit Brussel]. <https://researchportal.vub.be/en/studentTheses/indoor-navigation-by-centralized-tracking>

Links <https://youtu.be/fMFZu4Z49SU> | <https://maximvdw.be/publications/2019/thesis/>

2016

Bachelor thesis: eID IO - Applicatie besturing

My bachelor thesis was designed for the company BITPOWER. Using the European Identity card (eID), remote authorisation access could be granted via a mobile application.

My bachelor thesis was to provide remote actions for eID authentication. It was awarded the best thesis of the class of 2016.

Link <https://maximvdw.be/publications/2016/thesis/>

2013

Final work: WisaReg

My final work during the last year of my highschool was a database migration tool for migrating the Flemish student database to other platforms used by students.

WisaReg is an application that provides newly registered students from the Wisa database with accounts for various services. It was awarded the best final work of 2013.

Link <https://maximvdw.be/publications/2013/gip/>

● **CONFERENCES AND SEMINARS**

01/02/2025 – 02/02/2025 Brussels, Belgium

Presentation at FOSDEM 2025

Presentation titled 'Discovering Indoor Environments and Positioning Systems'

Links <https://fosdem.org/2025/schedule/event/fosdem-2025-4526-discovering-indoor-environments-and-positioning-systems/> | <https://maximvdw.be/presentations/2025/fosdem2025/>

26/05/2024 – 30/05/2024 Hersonissos, Crete, Greece

Conference presentation at ESWC 2024

Paper presentation titled 'FidMark: A Fiducial Marker Ontology for Semantically Describing Visual Markers'

Links <https://2024.eswc-conferences.org/accepted-papers/> | https://videlectures.net/embed/videos/eswc2024_van_de_wynckel | <https://maximvdw.be/presentations/2024/eswc2024/>

02/05/2024 – 03/05/2024 Leuven, Belgium

Poster presentation at SoSy 2024

Poster presentation titled 'Discoverable and Interoperable Augmented Reality Environments Through Solid Pods'

Links <https://events.vito.be/sosy2024> | <https://maximvdw.be/presentations/2024/sosy2024/>

07/11/2023 – 10/11/2023 Nagoya, Japan

Conference presentation at IoT 2023

Paper presentation titled 'SemBeacon: A Semantic Proximity Beacon Solution for Discovering and Detecting the Position of Physical Things'

Links <https://iot-conference.org/iot2023/> | <https://maximvdw.be/presentations/2023/iot2023/>

12/05/2023 – 12/05/2023 Brussels, Belgium

Poster presentation at BeJS conf 2023

Poster presentation of the OpenHPS framework

Links <https://www.react.brussels/conferences/bejs-conf-2023> | <https://maximvdw.be/presentations/2023/bejsconf/>

23/09/2022 – 27/09/2022 Hangzhou, China

Conference presentation at ISWC 2022

Paper presentation titled 'POSO: A Generic Positioning System Ontology'

Links <https://iswc2022.semanticweb.org/index.php/accepted-papers/index.html> | <https://openhps.org/publications/2022/5b3-Van-de-Wynckel-Video-MQ.mp4> | <https://maximvdw.be/presentations/2022/iswc2022/>

05/09/2022 – 07/09/2022 Beijing, China

Conference presentation at IPIN 2022

Paper presentation titled 'A Solid-based Architecture for Decentralised Interoperable Location Data'

Links <https://ipin-conference.org/2022/> | https://openhps.org/publications/2022/WiP65_MaximVandeWynckel.mp4 | <https://maximvdw.be/presentations/2022/ipin2022/>

05/02/2022 – 06/02/2022 Brussels, Belgium

Presentation at FOSDEM 2022

Presentation titled 'Rapid Prototyping of a Positioning System Using the OpenHPS Framework'

Links https://archive.fosdem.org/2022/schedule/event/lt_openhps/ | https://video.fosdem.org/2022/L.lightningtalks/lt_openhps.webm | <https://maximvdw.be/presentations/2022/fosdem/>

29/11/2021 – 02/12/2021 Lloret de Mar, Spain

Conference presentation at IPIN 2021

Paper presentation titled 'Indoor Positioning Using the OpenHPS Framework'

Links <https://ipin-conference.org/2021/> | <https://maximvdw.be/presentations/2021/ipin2021/>

PROJECTS

01/10/2019 – CURRENT

OpenHPS

OpenHPS is an open source hybrid positioning system to help developers fuse various positioning technologies and algorithms. The system offers a modular data processing framework with each modules ranging from computer vision to common algorithms such as fingerprinting or data persistence of sampled data.

Link <https://openhps.org>

01/10/2022 – CURRENT

SemBeacon

SemBeacon is an ongoing project for the development of a semantic Bluetooth Low Energy beacon specification that helps to describe the beacon itself, its deployment and the positioning system used within.

Link <https://sembeacon.org>

01/07/2013 – CURRENT

SpigotMC Plugins

I am an active member of the SpigotMC.org developer community. Having developed software that has been sold to more than 20,000 users since 2014

Link <https://www.spigotmc.org/members/maximvdw.6687/>

01/09/2015 – 01/07/2018

EhB Rooster

EhBRooster.be was a project aimed at improving the usability of timetables for Erasmushogeschool Brussel, gaining significant interest from students and staff. Developed in Java and PHP, the website influenced the adoption of a new timetable system before its discontinuation in 2018.

Link <https://web.archive.org/web/20180812082356/https://ehbrooster.be/>

01/08/2015 – 01/07/2016

eIDIO Cloud Authentication

eIDIO was a platform developed by BITPOWER to provide secure eID access to buildings. I was tasked to expand this platform with cloud authentication.

01/04/2009 – 01/07/2013

Shutti

Shutti was a set of software tools developed for Windows that enabled users to optimize, schedule and automate their computer's power management settings.

Link <https://web.archive.org/web/20130831040157/http://www.shutti.co.nr:80/>

01/08/2012 – 30/06/2013

WisaReg

My final work at my highschool was a project called WisaReg. WisaReg is a database migration tool to convert data from the Wisa database to other internal databases. The tool aimed to help the ICT administrators to automatically create new user accounts in LDAP, Chamilio, Smartschool and other internal databases.

● **HOBBIES AND INTERESTS**

Scuba diving

3* (Bachelor) diver at the VUB Diving Center

Link <https://www.vubdivingcenter.be>

Scuba diving

2* CMAS diver

Link <https://www.nelos.be>