# Candan Eylül Kilsedar

*Curriculum Vitae*

## Personal Information


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| Date of birth | July 5, 1989 |
| Nationality | Turkish |
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| Email address | candankilsedar@gmail.com & candaneylul.kilsedar@polimi.it |
| Affiliation | GIS Team, GEOlab, Department of Civil and Environmental Engineering, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133, Milan, Italy |


## Education

2015–present **PhD in Environmental and Infrastructure Engineering**, *Politecnico di Milano*, Milan, Italy.
Using Free and Open Source Software for Multidimensional Visualization and Processing of Big Open Urban Geospatial Data on the Web

2012–2014 **MSc in Computer Science and Engineering**, *Politecnico di Milano*, Como, Italy.

2007–2012 **BSc in Computer Science and Engineering**, *Sabancı University*, Istanbul, Turkey.

2011, spring **Erasmus in Information Technology**, *Uppsala University*, Uppsala, Sweden.

## Work Experiences

January 2015–present **Research Fellow**, *Politecnico di Milano*, Milan, Italy.
Contracts have been titled in order as "Developing the two-dimensional web GIS of the Interreg project between Italy and Switzerland, The Paths of Via Regina, for computer and mobile devices (smartphone and tablet); test and validation of the applications developed", "GIS tools for the web visualization and processing of geospatial data", "Geomatics, citizen science, big geo data for environment and territory: viewers, mobile devices, applications", "Multidimensional web visualization for geospatial data in the context of the project URBAN GEO BIG DATA (URBAN GEOmatics for Bulk Information Generation, Data Assessment and Technology Awareness)".

2011, summer **Intern**, *Kobe Institute of Computing, KIC*, Kobe, Japan.
Creating animations using Processing library that can be interacted through a floating image touch display.

## Teaching Experiences

2017–2019 **Teaching Assistant**, *Politecnico di Milano*, Milan, Italy.
Teaching the MSc students of the Geographic Information Systems (GIS) course in Geoinformatics Engineering programme PostgreSQL and PostGIS, OpenStreetMap (OSM), GeoServer, GDAL, OpenLayers, Leaflet, QGIS plugin qgis2web and Mapbox Studio.

June 2018 **Teacher**, *Politecnico di Milano*, Lecco, Italy.
Teaching within Geodesy and Geoinformatics for Sustainable Development in Jordan (GEO4D) project geospatial database management systems for big data, examples of mobile mapping applications and OpenLayers.

March 2017 **Teacher**, *Cefriel*, Milan, Italy.
Teaching introduction to MapServer, GeoServer, OpenLayers, Leaflet and NASA Web WorldWind.

2016 **Teaching Assistant**, *Politecnico di Milano*, Como, Italy.
Teaching the MSc students of the Remote Sensing course in Environmental and Geomatic Engineering programme SNAP (Sentinel Application Platform) software.

2015–2016 **Teaching Assistant**, *Politecnico di Milano*, Como, Italy.
Teaching the MSc students of the Geographic Information Systems (GIS) course in Environmental and Geomatic Engineering programme OpenLayers and Leaflet.

## Main Projects

### URBAN GEOmatics for Bulk Information Generation, Data Assessment and Technology Awareness (URBAN GEO BIG DATA) (2017–2020)

Description The project has contributed to the utilization of the data from Earth observation satellites and mobile sensors for a better understanding of several urban dynamics. The author's responsibility is to visualize multidimensional raster and vector geospatial data and enable the processing of multidimensional raster geospatial data on the Web. It is a Project of National Interest (PRIN) funded by the Italian Ministry of Education, University and Research (MIUR). The application for visualization and processing is available at http://urbangeobigdata.como.polimi.it/. Its source code is available at https://github.com/kilsedar/urban-geo-big-data-3d.

Tools Apache Web Server, GeoServer, CouchDB, PouchDB, rasdaman, CesiumJS, NASA Web WorldWind, QGIS

### Land Cover Collector (2018)

Description The application was developed to collect data on land cover classification using the classes of GlobeLand30. It is published on Google Play and App Store and it is available on the Web at https://landcover.como.polimi.it/collector/. The application was developed within the Capacity Building for High-Resolution Land Cover Intercomparison and Validation project, funded by ISPRS Education and Capacity Building Initiatives 2018. Its source code is available at https://github.com/kilsedar/land-cover-collector.

Tools Apache Web Server, CouchDB, PouchDB, Cordova, Leaflet

### 3D OSM Plugin API (2017)

Description The API developed in the Google Summer of Code program visualizes OSM data on a virtual globe created using NASA Web WorldWind API. Buildings can be visualized in 3D while the rest of the features are visualized in 2D using the information available in the OSM database. Its source code is available at https://github.com/kilsedar/3dosm. http://osm.eoapps.eu can be used to get more information and visualize the data, which reached the finals at NASA Europa Challenge in 2017.

Tools NASA Web WorldWind, QGIS, GRASS GIS

### MIGRATE (2016)

Description MIGRATE was a web application developed with a gamification approach for educating and raising awareness about the migration phenomenon in Europe. It was funded under the third call of MYGEOSS project by the Joint Research Center (JRC) of the European Commission. Its source code is available at https://github.com/kilsedar/migrate. The author was one of the two developers.

Tools Django, PostgreSQL, OpenLayers

### The Paths of Via Regina (2015)

Description The Paths of Via Regina, an Interreg project between Italy and Switzerland, aimed to create new tools to promote cultural heritage in the cross-border area around Via Regina. The team developing the web GIS of the project, which is available at http://viaregina3.como.polimi.it/ViaRegina/, was composed of the author and two developers from The University of Applied Sciences and Arts of Southern Switzerland.

Tools Apache Web Server, GeoServer, PostgreSQL, PostGIS, pgRouting, ZOO, OpenLayers, TripAdvisor API

### Other Projects (2014–2018)

Description During her MSc and PhD education, the author developed web GIS in various projects, including Buried Torrents, Via Regina 3D, heatmap visualization of social media data, Brezza sull'Adda, Osaka bike sharing and Lake Poli School.

Tools Apache Web Server, GeoServer, CouchDB, PouchDB, OpenDataKit, OpenLayers, Leaflet, NASA Web WorldWind, Ext JS, GeoExt

## Technical Skills

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| OS | Linux (Ubuntu), macOS, Windows |
| Languages | JavaScript, HTML5, CSS3, Python, SQL |
| Databases | PostgreSQL (with PostGIS and pgRouting), CouchDB, PouchDB, rasdaman |
| Servers | Apache HTTP Server, Apache Tomcat, MapServer, GeoServer |
| Desktop GIS | QGIS, GRASS GIS |
| Web GIS | OpenLayers, Leaflet, NASA Web WorldWind, CesiumJS |
| App. Dev. | Django, Cordova, OpenDataKit |

Others LaTeX, OGC web standards, GDAL/OGR, Git for VCS, Bootstrap for responsive UI design, iD editor, JOSM

## Selected Publications

2019 Kilsedar, C. E., Frigerio, L., Bonano, M., Bordogna, G., Carrara, P., Imperatore, P., Lanari, R., Manzo, M., Pepe, A., & Brovelli, M. A. (2019). Visualization of Big Geodata: an Experiment with DInSAR Deformation Time Series. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4/W14*, 135–141. doi:10.5194/isprs-archives-XLII-4-W14-135-2019

Kilsedar, C. E., Fissore, F., Pirotti, F., & Brovelli, M. A. (2019). Extraction and Visualization of 3D Building Models in Urban Areas for Flood Simulation. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-2/W11*, 669–673. doi:10.5194/isprs-archives-XLII-2-W11-669-2019

Kilsedar, C. E., Bratic, G., Molinari, M. E., Minghini, M., & Brovelli, M. A. (2019). Open Educational Resources for Validation of Global High-Resolution Land Cover Maps. *PeerJ Preprints*. doi:10.7287/peerj.preprints.27214v2

2018 Brovelli, M. A., Minghini, M., Molinari, M. E., Kilsedar, C. E., Wu, H., Zheng, X., Chen, J., & Shu, P. (2018). Open Source Software and Open Educational Material on Land Cover Maps Intercomparison and Validation. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XLII-4*, 61–68. doi:10.5194/isprs-archives-XLII-4-61-2018

2017 Aiello, M., Brovelli, M. A., Kilsedar, C. E., Zurbarán Nucci, M. A., Minghini, M., & Gianinetto, M. (2017). MIGRation pATterns in Europe: Geomatics and gamification techniques to raise the awareness of European citizens on migration flows. *Geoengineering Environment and Mining, 151*(2), 9–14. [download]

Kilsedar, C. E., Oxoli, D., Frassinelli, F., Montani, M., & Minghini, M. (2017). Humanitarian Mapping within a Student Association: PoliMappers. *Geomatics Workbooks 13*, 130–136. [download]

Pirotti, F., Brovelli, M. A., Prestifilippo, G., Zamboni, G., Kilsedar, C. E., Piragnolo, M., & Hogan, P. (2017). An open source virtual globe rendering engine for 3D applications: NASA World Wind. *Open Geospatial Data, Software and Standards, 2*(4). doi:10.1186/s40965-017-0016-5

2016 Brovelli, M. A., Kilsedar, C. E., Minghini, M., & Oxoli, D. (2016). GIS-based analysis of a peculiar effect of urbanization: the case of the buried watercourses of Como (Italy). *Applied Geomatics, 8*(2), 91–105. doi:10.1007/s12518-016-0169-4

Zurbarán Nucci, M. A., Oxoli, D., Kilsedar, C. E., Wightman, P., & Brovelli, M. A. (2016). Joining Spatial Visualization Tools with Social Media Data Using Free and Open Source Software. *Proceedings of the 13th International Conference on Location-Based Services*, 221–224. [download]

2015 Antonovic, M., Brovelli, M. A., Cannata, M., Cardoso, M., Kilsedar, C. E., Minghini, M., & Zamboni, G. (2015). Promoting slow tourism through FOSS4G Web Mapping: an Italian-Swiss case study. *Geomatics Workbooks 12*, 99–104. [download]

## Selected Attended Events and Training

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| August 2019 | FOSS4G conference, attended "Spatio-temporal data processing and visualization with GRASS GIS" and "QGIS and PostGIS meet in the 3rd dimension" workshops, Bucharest, Romania. |
| January 2019 | YouthMappers Leadership Workshop, University of Pretoria, Pretoria, South Africa. |
| July 2018 | State of the Map (SotM), volunteered in the organization of the conference, organized a mapathon as the president of PoliMappers, presented "2D and 3D Visualization of OpenStreetMap Data", Politecnico di Milano, Milan, Italy. |
| November 2017 | The seminar "A gentle introduction to CityGML as open standard for semantic 3D city modelling" given by Prof. Giorgio Agugiaro, University of Padua, Padua, Italy. |
| August 2016 | FOSS4G conference, participated in the following code sprint and contributed to the documentation of GeoServer, helped in the organization of both the conference and code sprint, Bonn, Germany. |
| June 2016 | ISPRS summer school "Natural resource management: from data processing to web publishing", Telč, Czech Republic. |
| October 2015 | The hackathon supporting the Sentinel Application Platform (SNAP) in the framework of the EO Open Science 2.0 conference, European Space Agency (ESA) Centre for Earth Observation (ESRIN), Frascati, Italy. |

## Associations

### Open Source Geospatial Foundation (OSGeo)

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| 2017 | Charter member |

### PoliMappers

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| 2016 | President between November 2016 and December 2018 and faculty advisor since December 2018. PoliMappers is a volunteer students' group and a chapter of YouthMappers. The mission of the group is to train and motivate the next generation of volunteer mappers and to do mapping using free and open source software within the university as well as primary and secondary schools. In 2018, 2019 and 2020 PoliMappers received various awards and participated in the organization of the conference SotM 2018. The author received the blog post with the highest social media reach award in 2018 and the best blog award in 2020. |

## Language Skills

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| Turkish | Mother tongue |
| English | Advanced |
| Italian | Elementary |