

Tomaž Podobnikar – Curriculum Vitae

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Highlights

- **Career:** 25+ years professional experiences; worked for 13 academic, governmental, NGO, IGO, consulting organizations in 9 countries; 25 awards (incl. **Fulbright**) and 2 prizes as researcher, 3 awards as teacher
- **Professional activities:** a proficient, self-motivated researcher (1500+ citations, reviewed 210+ papers, editorial board of 7 journals), R&D, teacher (lecturer, supervisor), trainer, consultant, professional communicator; managed 30+ & contributed to 100+ international projects (20+ with industry); evaluated 75+ scientific and industrial international projects; team leader (head of the department, chief GIS) and player; cross-disciplinary and multicultural involvements
- **Geospatial Information Expert: geosciences, geoinformatics, geomatics, GIScience, GIS, Earth observation, applied sciences** (natural, social, environmental, engineering); geodesign, SDI, spatio-temporal, remote sensing, geomorphometry, cartography, spatial analysis, geospatial data science, image processing, environmental geography, hazard and risk management, palaeoenvironmental analysis, spatial modelling for conservation (environment, cultural heritage), landscape archaeology, spatial data quality and information management, interoperability, geovisual analytics, spatial modelling, reasoning and decision making, spatial data integration, space research; geodetic and GNSS surveying, database management, geostatistics, cloud GIS, VM, IoT
- **Core competencies:** proactive management/leadership since 2000, highly organized self-starter, comfortable in communicating at all levels, having well-rounded experience, seeing a research potential where other may not, always make feasible own risky ideas, enthusiastic teacher, efficient in team approaches to performing at their best
- **Key achievements, innovation:** [1] **Spatial data conflation (integration with enrichment) methodology and applications** (e.g. reduced cost for [DEM/DTM](#) up to 25-times, realized for the National DEM of Slovenia); [2] **Generic methods for GIS, RS and image processing** (e.g. own single method [Multidirectional Visibility Index](#) – MVI for predictive modelling, feature detection and recognition, [geovisualization](#) and photography); [3] Advancing [geomorphometry](#) as a technique to match GIS, RS, photogrammetry and lidar principles in spatial analysis and modelling used in the Esri World Topographic Map and other applications. [4] Methodology to pre-process any geospatial data with special tools to make them ‘analytics ready’, realized for ESCWA and ESA.
- **Education, habilitations: PhD, Associate Professor, Scientific Councillor** (full prof. science – permanent)
- **Courses/teaching:** Geographic Information Systems, Environmental Information Systems and GIS, Management of spatial data quality, Quality of Information, Digital terrain modelling for natural hazards assessment, Photogrammetry
- **Language skills:** Slovenian (native speaker); English, Serbian and Croatian (fluent); German, Italian, Spanish, Russian, French, Arabic (basic)

Education

2001-09-28; PhD; Digital terrain model from various data sources of different quality (geoinformatics, geomorphometry, geovisual analytics, spatial analysis, cartography, data integration), University of Ljubljana
1998-05-15; MSc; Monte Carlo simulation methods in spatial analysis (spatial analysis, Monte Carlo simulation, geoinformatics, cartography, spatial statistics), University of Ljubljana
1995-07-06; BSc; Spatial modelling with geographic information system (spatial analysis, landscape archaeology, coordinate systems), University of Ljubljana

Professional Positions

2021–present; **Sustainable Development Officer & Regional Advisor**, P3; United Nat.; ESCWA, Lebanon
2020–2021; Associate Prof. (Habil. Geodesy & Geoinformatics); University of Ljubljana, Slovenia
2020; **Chief GIS**, Geospatial Information Officer, P3; United Nat.; MINUSMA, GIS Unit, FTS, Bamako, Mali
2019–2020 Geospatial Information Officer, FS6; United Nat.; Client Solutions Delivery Section Service for Geospatial, Inform. & Telecomm. Technologies, UNGSC, UN Department of Operational Support, Brindisi, Italy
2009–2019; **Associate Prof.** (Habil. Cartography); Faculty of Civil and Geodetic Eng., Univ. of Ljubljana, Slovenia
2008–2019; Associate Prof. (Habil. GIS); Faculty of Information Studies in Novo Mesto, Slovenia
2008–2019; Associate Prof. (Habil. Spatial Informatics); School of Advanced Social Studies in Nova Gorica, Slovenia
2013–2018; External Consultant; Oxford Policy Management Ltd, United Kingdom
2012–2013; Project Manager; Mura Regional Development Agency Ltd, Murska Sobota, Slovenia
1995–2013; **Scientific Councillor** (= full prof. science – permanent); Institute of Anthropological & Spatial Studies, Slov. Acad. of Sciences & Arts (2008–2013; **Head of the Departm. of Environm. Studies**), Ljubljana, Slovenia
2008–2011; Assist. Prof. (Habil. Spatial Informatics); School of Environm. Sciences, Univ. of Nova Gorica, Slovenia
2007–2008; Project Assistant; Institute of Photogrammetry & Remote Sensing, Vienna Univ. of Technology, Austria
2006; **Quality Researcher**; C.N.R.S., Laboratoire de Chrono-écologie, Univ. de Franche-Comté, Besançon, France
1999, 2000, 2001; Visiting Researcher; Institute of Photogramm. & Remote Sensing, Vienna Univ. of Tech., Austria
1997; Visiting Researcher; Faculty of Geodesy, Delft University of Technology, The Netherlands
1995; Civil Servant; Surveying and Mapping Authority of the RS, Ministry of Environ. of the RS, Ljubljana, Slovenia

Editor, Scientific Committee Member, Reviewer

Editorial Board of the Remote Sensing, section “Remote Sensing in Geology, Geomorphology and Hydrology”, 2019–present • Geoinformatics FCE CTU, 2016–present • IJEES, 2015–present; • ISPRS Journal of Photogrammetry and Remote Sensing, 2013–2016 • Journal of Geodesy, 2010–2014 • Geographical Information Systems in Slovenia (in Slovenian), since 1997 (Also organized associated biennial symposiums). Edited a monograph [Universal Ontology of Geographic Space: Semantic Enrichment for Spatial Data](#), IGI Global, (issued in 2012), and special issues Semantic Enrichment for Spatial Data, IGI Global (2012), [Advances in Global Digital Elevation Model Processing](#), MDPI (2019), [Perspectives on Digital Elevation Model Applications](#), MDPI (2020), [Spatio-Temporal Analysis of Urbanization Using GIS and Remote Sensing](#) (2022). A reviewer of 49 international journals and a member of the scientific committees. Refereed 2 monographs, 7 national and 5 international projects. An active member of a number of working groups, particularly at the Association Geographic Information Laboratories Europe (AGILE) since 1998, Society for Conservation GIS (SCGIS) since 2015.

Funding and Research Projects, Fieldwork

Very successful in obtaining research grants at national, regional, EU and other international levels. Active participation as a major team player, in 90+ national and international cooperation projects in Slovenia, Croatia, North Macedonia, Italy, Austria, Hungary, France, Russia, Mexico, Mali and Lebanon, as well as in a project covering the entire Earth and the planet Mars. Worked in different types of groups and alone. This has given me access to very good networks of people from EU countries and other parts of the world. Successfully attracted competitive research funds for 19+ projects, managed and executed them (e.g. co-financed by the ERDF: FP6, FP7), and participated in 16+ joint cooperation projects with industry, co-financed by Skolkovo Foundation, Telekom, DARS, etc. The work includes a number of basic research projects co-financed by FFG/ALR, ASAP, ARRS, etc. Highlighted projects with their acronyms: OBSERVE, PARAMount, TransEcoNet, TMIS.plus.II, TMIS.morph, CAENTI, SISTEMaPARC, Alpine Windharvest, AQUADAPT, ArchaeDyn, Adriatic Island Project, National Program of Water Management – in the framework of Interreg programs, Central Europe, Inter-American Development Bank, [National Geographic](#) (CRE grant).

Geospatial, spatial analytics and IT skills

Quantitative and qualitative research with the development of own methods: spatial data analysis, spatial statistics; mathematical modelling; processing various spatial data layers, satellite imagery; Monte Carlo simulations; predictive analytics and spatial data mining; spatial data conflation, integration, and multi-method approaches; photographic processing, spatial generalization, digital imagery enhancement, spatial reasoning, cognition and decision making.

Geodetic (and GNSS) surveying and mapping, computer programming, spatial databases, cloud GIS, VM. Computer applications: CAD and database management since 1990, GIS, cartography and RS since 1994, (spatial) statistics since 1996, ALS since 2003, various visualization software since 1994; knowledge of programming languages to bring research beyond the limits of common off-the-shelf analytical software.

Programming and algorithms development (software), (Visual) Basic, Fortran, C, C++, Python (including ArcPy, PyGRASS, OpenCV, Matplotlib, PySAL, GeoPandas, APIs for GDAL, QGIS, SAGA GIS), RPL (Reverse Polish Lisp), MATLAB and Octave, SQL, Data Analysis Expressions (DAX), UML, LaTeX, HTML and JavaScript; programming with scripts for AutoCAD, ArcGIS (including ArcGIS Pro, ArcInfo Workstation, FME, ArcGIS Server, ArcGIS Online, Portal for ArcGIS, ArcSDE), open source GeoServer, eCognition, Google Earth Engine, Idrisi, ERDAS Imagine, Global Mapper, GRASS GIS, SAGA GIS, QGIS; for dashboards (Power BI, Esri solutions); TensorFlow; spatial statistical programming in R (+ ggplot2), Orange, SPSS; database programming in dBase, MS Access, MS Excel, Python, PostGIS/PostgreSQL; implementation of libraries like GDAL, ImageMagick and FFmpeg; creative programming scripts for visualization IrfanView, PaintShop Pro, CorelDRAW, Adobe Creative Suite (CS) (Adobe Acrobat, Photoshop, Illustrator, Bridge), and for video editors Adobe Premiere Pro and DaVinci Resolve, etc. MS Office 365.

Operating systems: MS Windows (CMD Shell, PowerShell), Linux (Bash), Unix (Unix Shell), Android.

Publications as Main Author

Written, participated in, or actively contributed in more than 55 original scientific papers for journals, 27 monographs, 54 popular science articles, 7 national and 60 international conferences and meetings. A complete list of publications (currently 615 records) is documented in COBISS, [Personal Bibliographies](#). H-index 18 with the most cited paper being cited 117-times. The representative publications in chronological order (all references are available on request):

Šarlah, N., **Podobnikar, T.**, Ambrožič, T., Mušič, B. 2020: Application of Kinematic GPR-TPS Model with High 3D Georeference Accuracy for Underground Utility Infrastructure Mapping: A Case Study from Urban Sites in Celje, Slovenia. *Remote Sens*, 12(8). DOI: [10.3390/rs12081228](#) (cited 13 times)

Šturm, T., **Podobnikar, T.** 2017: A probability model for long term forest fire occurrence in the karst forest management area of Slovenia. *Int J Wildland Fire*, 26(5), 399-412. DOI: [10.1071/WF15192](#) (cited 12 times)

Podobnikar, T. 2012: [Detecting Mountain Peaks and Delineating Their Shapes](#) Using Digital Elevation Models, Remote Sensing and Geographic Information Systems Using Autometric Methodological Procedures. *Remote Sens*, 4(3), 784-809 (cited 44 times)

Podobnikar, T. 2009: [Georeferencing and quality assessment](#) of Josephine survey maps for the mountainous region in the Triglav National Park. *Acta geod geophys Hung*, 44(1), 49-66 (cited 63 times)

Podobnikar, T. 2005: Production of integrated [digital terrain model from multiple datasets](#) of different quality. *Int J Geogr Inf Sci*, 19(1), 69-89 (cited 92 times)