

# CURRICULUM VITAE

**Surname** Hofierka  
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## Education and Qualification:

Institution	VSB-Technical University of Ostrava, Czech Republic
Date	from June 13, 2013
Academic Degree	full profesor in Geoinformatics

Institution	University of Prešov, Faculty of Humanities and Natural Sciences, Slovak Republic
<i>Date:</i>	from June 21, 2004
<i>Academic Degree</i>	associate professor of physical geography and geoecology.

Institution	Comenius University Bratislava, Slovak Republic
<i>Date:</i>	10/1992 to 02/1998
<i>Scientific Degree</i>	Ph.D. in Cartography and Geoinformation Science. The topic of the PhD thesis: "Modelling natural phenomena within a GIS environment".

Institution	Comenius University Bratislava, Slovak Republic
<i>Date:</i>	09/1987 to 06/1992
<i>Academic Degree</i>	MSc. in Geography and Cartography

## Professional Employment:

<i>Date: from - to (month/year)</i>	September 2012 – present
<i>Location</i>	Košice, Slovakia
<i>Company</i>	Pavol Jozef Šafárik University in Košice
<i>Position</i>	Associate Professor (9/2012-8/2013) Full Professor (9/2013 - present) Director (4/2013 - present)
<i>Description</i>	Academic position, Head of Institute

<i>Date: from - to (month/year)</i>	March 2001 – present
<i>Location</i>	Prešov, Slovakia
<i>Company</i>	University of Prešov

<i>Position</i>	Associate Professor
<i>Description</i>	Teaching of GIS, Cartography and statistical methods, research, Head of GIS laboratory

<i>Date: from - to (month/year)</i>	March 2002 – November 2002
<i>Location</i>	Raleigh, U.S.A.
<i>Company</i>	North Carolina State University
<i>Position</i>	Post-doctoral reasearch associate
<i>Description</i>	Research, software development

<i>Date: from - to (month/year)</i>	January 1998 – 2007
<i>Location</i>	Bratislava, Slovakia
<i>Company</i>	GeoModel s.r.o. (geoinformation company)
<i>Position</i>	expert in GIS and cartography
<i>Description</i>	Environmental modelling in GIS, research, development and programming.

<i>Date: from - to (month/year)</i>	May 1996 – December 2004
<i>Location</i>	Bardejov, Slovakia
<i>Company</i>	City Office of Bardejov
<i>Position</i>	expert in GIS and cartography
<i>Description</i>	Processing of cadastral and town maps, managing and planning of municipal information system in Bardejov

<i>Date: from - to (month/year)</i>	October 1994 – July 1997
<i>Location</i>	Bratislava, Slovakia
<i>Company</i>	GeoForum – Foundation supporting activities in GIS and remote sensing in Slovakia
<i>Position</i>	manager
<i>Description</i>	Collection and dissemination of information on various activities in the field of GIS and remote sensing (in Slovakia and Czech Republic), establishing personal contacts and support of education publishing Geoinfo journal

<i>Date: from - to (month/year)</i>	November 1994 – April 1996
<i>Location</i>	Bratislava, Slovakia
<i>Company</i>	Comenius University Bratislava, Slovak Republic
<i>Position</i>	scientist
<i>Description</i>	interpolation and surface analysis, soil erosion modelling, volume modelling

### **International Experience:**

1992 – 3-month study visit at University of Hertfordshire, Hatfield, U.K.  
1992 – 1-week study visit at Danish Technical University, Copenhagen, Denmark  
1999 – 2000 Phare SPARTACUS project (event-based erosion-deposition modelling and radionuclides distribution)  
2001 – 2002 Phare Macro-Ecos Ouverture project (implementation of software tools for real-estate management in municipal information systems)  
2002 – 9-month research visit at North Carolina State University , Raleigh, U.S.A.  
2012 – 1-week study visit at Queen's University Belfast, U.K.

### **Research Areas:**

geographic information systems as a tool in landscape research, spatial interpolation and geomorphometry, digital terrain models, water erosion modeling, solar radiation modeling, cultural

landscape and landscape changes, renewable energies, open source development and programming, municipal information systems, 3-D city models and applications.

### **Courses Taught:**

Geographic Information Systems  
Principles of Cartography  
Elements of Statistics in Geography  
GIS and Cartography  
Elements of GIS  
Land Information Systems  
Spatial Analyses and Modeling  
Applied Geoinformatics

### **Invited Talks:**

1. "Multivariate interpolation of natural phenomena in GRASS GIS". European Commission Joint Research Centre, Institute for Environment and Sustainability, Renewable Energies Unit Via E. Fermi 1, I-21020 Ispra (VA), Italy, 8.7.2004.
2. "Modelovanie priestorových procesov v krajine pomocou GIS-u GRASS". Univerzita Palackého, Přírodovědecká fakulta, Katedra geoinformatiky, tř. Svobody 26, 77146 Olomouc, Czech Republic, 22.2.2005.
3. "Potenciál solárnej energie v urbánnom prostredí". VŠB-Technická univerzita Ostrava, Institut geoinformatiky. 17. listopadu 15/2172, 708 33 Ostrava-Poruba. Czech Republic, 10.11.2009.
4. "Modelovanie krajiny a jej priestorových procesov pomocou GIS-u GRASS". VŠB-Technická univerzita Ostrava, Institut geoinformatiky. 17. listopadu 15/2172, 708 33 Ostrava-Poruba. Czech Republic, 10.11.2009.
5. "Open-source geografický informačný systém GRASS a modelovanie priestorových procesov v krajine". Univerzita Pavla Jozefa Šafárika v Košiciach, Přírodovědecká fakulta, Jesenná 5, 040 01 Košice, Slovak Republic. 24.10.2011
6. „LANDSCAPE DYNAMICS FROM LiDAR: features, metrics and processes“. Invited talk at International Symposium GIS Ostrava 2012, Surface models for geosciences, Ostrava, 24.1.2012, Czech Republic
7. „Výskum a modelovanie krajiny pomocou geografického informačného systému“. Pozvaná prednáška na Univerzite Konštantína Filozofa v Nitre, Fakulta prírodných vied, Slovak Republic, 21.6.2012. Veda v Centre.
8. „Modeling the inception of gully erosion around a medieval town of Bardejov using geographic information systems“. Invited talk at Queen's University Belfast, Belfast, U.K., 26.11.2012
9. „Landcape Modelling Using Open-Source GIS Tools“. Invited talk at Queen's University Belfast, Belfast, U.K., 27.11.2012

### **Recent Research Projects:**

**2016 - 2020 - UrbanHist (grant programu EÚ Horizon 2020 výzva Inovative Training Networks, MSCA-ITN).**

**2016 - 2018 - SURGE: Simulating the cooling effect of urban greenery based on solar radiation modelling and a new generation of ESA sensors.** Contract with the European Space Agency. Principal Investigator.

**2017-2019 - Simulation and dynamic visualization of geospatial processes.** VEGA 1/0474/16. Principal Investigator.

**2016 - 2019 - Physically based segmentation of georelief and its geoscience application.** APVV-15-0054.

**2013 - 2017 - New methods of spatial modeling with laser scanning data and 3-D GIS (SPATIAL3D).** APVV-0176-12. Principal Investigator.

**2012 - 2014 - Spatial analyses and modelling for 3D GIS.** VEGA 1/0272/12. Principal Investigator.

**2008 - 2012 - Semantic enrichment of 3D city models for sustainable urban development.** COST Action TU0801. ESF-COST European Project (European Cooperation in the field of Scientific and Technical Research).

**2007 - 2008 - Management and Exploitation of Solar Resource (MESoR).** 6th Framework Programme of the European Union. FP6-2005-TREN-4

**2007 - 2008 - Cultural Landscape in Slovakia - Regionalization, Protection and Planning.** Grant project APVV. COST-0016-06. Principal investigator.

#### **Selected Recent Publications:**

Author/co-author of more than 100 publications (incl. monographs, chapters, peer-reviewed research articles) with more than 1200 citations (Scopus 875, h-index 9, WoS 604, h-index 9).

Hofierka, J., Gallay, M., Kaňuk, J., Šašák, J. (2017): Modelling Karst Landscape with Massive Airborne and Terrestrial Laser Scanning Data. In: Ivan, I., Singleton, A., Horák, J., Inspektor, T. (eds.) The Rise of Big Spatial Data, Lecture Notes in Geoinformation and Cartography, Springer International Publishing, 1-14.

Gallay, M., Hochmuth, Z., Kaňuk, J., Hofierka, J. (2016): Geomorphometric analysis of cave ceiling channels mapped with 3D terrestrial laser scanning, Hydrology and Earth System Sciences, 20, 1827-1849.

Hofierka, J., Knutová, M. (2015): Simulating Spatial Aspects of a Flash Flood Using the Monte Carlo Method and GRASS GIS: a Case Study of the Malá Svinka Basin (Slovakia). Central European Journal of Geosciences. In press.

Gallay, M., Hofierka, J., Kaňuk, J. (2014): Capacity of photovoltaic power plants in the Czech Republic. Journal of Maps. In Press. DOI: <http://dx.doi.org/10.1080/17445647.2014.935498>

Hofierka, J., Kaňuk, J., Gallay, M. (2014): The spatial distribution of photovoltaic power plants in relation to solar resource potential: the case of the Czech Republic and Slovakia. Moravian Geographical Reports 22, No. 2, pp. 26-33.

Mitasova H., Barton M., Ullah I., Hofierka J., Harmon R.S. (2013): GIS-Based Soil Erosion Modeling. In: John F. Shroder (ed.) Treatise on Geomorphology, Volume 3, pp. 228-258. San Diego: Academic Press.

Hofierka, J. (2012): Topographic Solar Radiation Modeling for Environmental Applications. In: Meyers, R. A. (ed.): Encyclopedia of Sustainability Science and Technology. Springer. DOI: 10.1007/978-1-44190851-3, ISBN: 978-0-387-89469-0, pp. 10621-10636.

Hofierka, J., Zlocha, M. (2012): A New Solar Radiation Model for 3-D City Models. Transactions in GIS 16, pp. 681-690.

Hofierka, J., Kaňuk, J. (2009): Assessment of Photovoltaic Potential in Urban Areas Using Open-Source Solar Radiation Tools. Renewable Energy 34, pp. 2206-2214.

Hofierka, J., Mitasova, H., Neteler, M. (2009): Geomorphometry in GRASS GIS. In: Hengl, T. and Reuter, H.I. (eds). Geomorphometry: Concepts, Software, Applications. Developments in Soil Science, Vol. 33, Elsevier, pp. 387-410. ISBN: 978-0-12-374345-9.

Hofierka, J. (2008): Spatial interpolation and terrain analysis. In: Bender, O., Evelpidou, N., Krek, A. & A. Vassilopoulos (eds.): Geoinformation Technologies for Geocultural Landscapes: European Perspectives. Leiden, The Netherlands: CRC Press/Balkema (Taylor & Francis Group), pp. 189-206. ISBN: 978-0-415-46859-6.

Hofierka, J., Cebecauer, T. (2007): Spatial interpolation of elevation data with variable density: A new methodology to derive quality DEMs. IEEE Geoscience and Remote Sensing Letters, Vol. 4, Issue 1, pp. 117-121, DOI: 10.1109/LGRS.2006.887055

Hofierka, J., Cebecauer, T., Šúri, M. (2007): Optimisation of Interpolation Parameters Using a Cross-validation. In: Peckham R.J., Jordan G. (eds.) Digital Terrain Modelling, Development and Applications in a Policy Support Environment, Series: Lecture Notes in Geoinformation and Cartography, Springer, ISBN: 978-3-540-36730-7.

Šúri, M., Huld, T., Hofierka, J. (2007): Solar resource modelling for energy applications. In: Peckham R.J., Jordan G. (eds.) Digital Terrain Modelling, Development and Applications in a Policy Support Environment, Series: Lecture Notes in Geoinformation and Cartography, Springer, ISBN: 978-3-540-36730-7

### **Practical Skills:**

- computer operating systems: UNIX, LINUX, MS Windows;
- geographical information systems: 25-year experience with GRASS GIS (membership in GRASS GIS Development Team), 20-year experience with ESRI GIS products (ArcGIS Desktop 10.x (ArcView)), MapInfo Professional, MicroStation (CAD)
- programming languages: C, Fortran;
- development and programming in C of several GIS modules included in a current distribution of GRASS GIS (r.sun, s.vol.idw, r.flowmd, r3.flow, r3.out.v5d, r3.in.v5d, r.sim.water, r.sim.sediment, NVIZ);
- text processors, spreadsheets and databases (MS Office), graphical software, Internet communication and publishing;
- spatial and attribute data handling, transformation, integration, analysis, plotting of cartographic outputs;

### **Language Skills (5 is the best):**

Language	Reading	Speaking	Writing
Mother tongue: Slovak	5	5	5
English	5	4	4
Russian	5	4	4

### **Professional Society Memberships:**

Cartographic Society of the Slovak Republic (since 1998, vice-chairman of the executive committee 2015-2019)

Slovak Geographical Society (since 1999)

February 22, 2017

Jaroslav Hofierka