



Veleučilište Hrvatsko zagorje Krapina - Krapina University of Applied Sciences,
Krapina, Croatia

is privileged to invite you to participate to

SPATIAL INFORMATION FUSION (SIF) ON-LINE TRAINING SEMINAR

Schedule: 15 - 17 March, 2022

Duration: 3 days, 5 lectures/demonstrations each day, every lecture/demonstration of duration of 50 min

Time-zone: to be presented on-line, geographically independent. **All times are GMT/UTC (London, UK times). Participants are advised to determine their local times using the TimeAndDate service: <https://www.timeanddate.com/worldclock/converter.html>**

Purpose: facilitation of capacity development in spatial data creation, aggregation, collation, statistical analysis, and statistical learning-based prediction modelling for a wide range of applications (GNSS resilience, transport, navigation, telecommunications, econometrics, strategy development, spatial planning, digital transformation, natural resources exploitation, mobility estimation and optimisation etc.). The event will be served as a prequel to the new International **Baška SIF Meeting**, to be held in Baška, Krk Island, Croatia, every October.

Aim: spatial data creation, including GNSS and remote sensing (EU Copernicus); on-line sources of spatial data; spatial data formats and quality; spatial information fusion; spatial statistical analysis; spatial statistical learning methods on spatial point, line trajectories, and shape (area - econometrics) data; spatial predictive models development on experimental spatial data; spatial predictive model validation.

Structure: 10 theoretical topics, 5 hrs of practical demonstrations with the bespoke software in the open-source R environment for statistical computing (openly available for multiple computing platforms: MS Windows, Linux, MacOS) .

Programme outline:

15th March, 2022 - DAY 1

13.00 GMT Opening. Mr Nenad Sikirica, Dean, Krapina University of Applied Sciences.

13.15 GMT L1 Spatial information fusion: spatial data Creation, Aggregation, Collation, statistical Analysis, and statistical learning-based prediction Modelling (CACAM) – motivation and rationale. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

14.15 GMT L2 Spatial data: essential terms, data classes, data formats. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

15.15 GMT L3 Spatial data creation, collection, aggregation and quality. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

16.05 GMT – 16.30 GMT Break

16.30 GMT L4 Open-access spatial databases: Open Street Map, Natural Earth, CGIAR-SRTM Digital Elevation Model, WorldClimate, GADM. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

17.30 GMT L5 Spatial statistics. Statistical learning on spatial data. Predictive model development methods. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

18.30 GMT Summary of the day. *Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

18.45 GMT Adjourn

16th March, 2022 - DAY 2

1300 GMT L6 Exploratory analysis of spatial data. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

1400 GMT L7 Division of space: grids, tessellations. Spatial correlation: Moran's I coefficient. Classification based on spatial data. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

1450 GMT – 1515 GMT Break

1515 GMT L8 Spatial modelling. Spatial interpolation and spatial regression: local regression, generalised linear regression, inverse weighted distance model, kriging. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

1615 GMT L9 Spatial point analysis. Spatial area analysis. *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

1715 GMT L10 Spatial line analysis. Trajectory analysis and prediction (ADS-B, AIS, animal trajectories). *Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

18.15 GMT Summary of the day. *Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia*

18.30 Adjourn

17th March, 2022 - DAY 3

P0 (pre-requisite, document) Environment set-up. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1300 GMT P1 Spatial data creation using GNSS observations. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1400 GMT P2 Spatial data formats and graphical presentation. Open spatial data access with R. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1450 GMT – 1515 GMT Break

1515 GMT P3 Exploratory analysis of spatial data. Spatial correlation. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1615 GMT P4 Spatial interpolation. Kriging-based spatial prognostic model development. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1715 GMT P5 Trajectory analysis with R. Lecturer: Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

18.15 GMT Summary of the day, and Seminar summary. Dr Renato Filjar, Krapina University of Applied Sciences, Krapina, Croatia

1830 GMT Adjourn

*Means: on-line, **zoom.us** platform, arrangement provided by Krapina University of Applied Sciences
Organizer: **Krapina University of Applied Sciences**, Krapina, Croatia (<https://www.vhzk.hr>)*

*Participation costs: **free to all registered parties** (no charge, with the mandatory registration)*

*Registration: **mandatory**, interesting parties should send individual registration requests with the following details:*

- (1) **title (Ms/Mrs, Mr, Dr, Prof etc.),***
- (2) **given name and family name,***
- (3) **organisation (university, company, etc.),***
- (4) **e-mail address***

to the following e-mail address: vhzk.sif.training@gmail.com

Disclaimer: Submitted data will be used for the on-line session arrangement, communication of updates, and provision of session access links, only, and will not be disclosed to any third-party. Registered e-mail addresses will be used for this event-related communications, only.

Krapina, 21st February, 2022

On behalf of Krapina University of Applied Sciences (<https://www.vhzk.hr/>),
Mr Nenad Sikirica
Dean