Visualization Project

Interaction and Information Design

1 Basic Information

This is a group assignment with groups of 2 – 5 students in size. The main task of the course is the research project. The project goal is to identify, extend, and evaluate an existing approach, combine several existing approaches for solving a novel problem, or develop a completely novel approach for solving a selected problem. We will present some possible topics in class, but students should try to think about their own ideas using their background and experience. Project requirements are:

1. *Project proposal* in the form of a 3 to 5 slide pitch presentation and must be based on some existing research work - scientific paper.
2. *Literature overview*, search for papers that cite and are cited by your seminal paper using Google Scholar or equivalent tools. You will use this review in preparation for the related work section of the final report.
3. *Development* should mostly make use of the existing frameworks such as D3.js[1] and Vega-Lite[2] or similar. Do not recreate already existing tools if they are available. The code must be submitted alongside the report in a git repository with appropriate documentation for their use. The use of existing work must be clearly indicated and stated in the final report.
4. *The evaluation* must include an experiment design that validates the correctness of the contribution. It should also try to show the qualitative and quantitative improvements in existing solutions.
5. *The report* must follow the structure of a research paper and should be max. 4 pages long (plus one page for references) in VGTC Conference format[3] (use Overleaf template project[4]). Start writing early on and try to complete individual sections when you are done with the corresponding work (e.g., write Related work during the literature review, write the Methodology section once you have finished developing your system, write the evaluation after you have evaluated it, etc.).
6. *Supplemental material* should be submitted in the form of a short video (max. 3 min) demonstrating the project idea and the results.

2 Deadlines and grading

2.1 Deadlines

- Project proposal is due on 31. 10. 2025
- Project report is due on 9. 1. 2026
- Project presentation & code is due on 15. 1. 2026
- Project supplemental material is due on 18. 1. 2026

2.2 Grading

- Project proposal - 5 %
- Project report - 20 %
- Project code – 15 %
- Project presentation – 10 %
- Project supplemental material - 10% - bonus

Late submissions are accepted but penalized -25% per day.

[1] https://d3js.org/
[2] https://vega.github.io/vega-lite/
[3] https://tc.computer.org/vgtc/publications/conference/
[4] https://www.overleaf.com/read/wwdtgqcwjyhk#c526d3

3 Project Topics

3.1 Regular Project:

- Identify an appropriate (interactive) visualization problem and data
- Analyze the data
- Research into how similar problems were tackled (review of scientific papers)
- Propose either a novel solution (system) or adapt/combine existing approach(es)

3.2 Visualization Challenge:

- IEEE 2026 SciVis Contest[5]
- Oracle Data Visualization Challenge[6]
- Find other active or past challenges.

3.3 Possible data sources

- Odprti podatki slovenije (OPSI)[7]
- ARSO podatki[8]
- SURS - SiStat[9]
- NIJZ - Podatki[10]
- Tableau data sets[11]
- GeeksForGeeks - Top Datasets for data visualization[12]
- ESA Open Science Catalog[13]
- NASA Open Data Portal[14]
- Google Earth Engine Data Catalog[15]
- ...

[5] https://sciviscontest2026.github.io
[6] https://www.oracle.com/analytics/data-visualization-challenge/
[7] https://podatki.gov.si
[8] https://meteo.arso.gov.si/met/sl/archive/
[9] https://pxweb.stat.si/SiStat/sl
[10] https://nijz.si/podatki/
[11] https://www.tableau.com/learn/articles/free-public-data-sets
[12] https://www.geeksforgeeks.org/data-visualization/top-datasets-for-data-visualization/
[13] https://opensciencedata.esa.int
[14] https://data.nasa.gov
[15] https://developers.google.com/earth-engine/datasets