Visualization

Winter

(in German: Visualization)

Module-ID: FIN-INF-102812

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
VIS	5	Winter	5.	1 Semester	english	Bachelor

Link:	LSF
Limited accessability:	true
Responsibility:	Bernhard Preim
Lecturer:	Bernhard Preim
Classes:	• Lecture *Visualization* • Exercise *Visualization*
Applicability in curriculum:	- B.Sc. INF: Informatik - Wahlpflicht - B.Sc. INF: Informatik Wahlpflicht (SPO 2027) - B.Sc. CV: Computervisualistik - Pflicht - B.Sc. CV: Computervisualistik Pflicht (SPO 2027) - B.Sc. INGINF: Informatik - Wahlpflicht - B.Sc. INGINF: Informatik Wahlpflicht (SPO 2027) - B.Sc. WIF: Gestalten und Anwenden - Wahlpflicht - B.Sc. WIF: Informatik Wahlpflicht (SPO 2027) - B.Sc. INF (bilingual): Informatik - Wahlpflicht - B.Sc. INF (bilingual): Informatik Wahlpflicht (SPO 2027)

Intended learning outcomes:
Students ...

- understand how physiological perception affects visualization effectiveness

- know basic visualization techniques, such as color coding, diagramme types and techniques to visualize graph and network data
- can generate appropriate visualizations for business and statistical data

Content:

- Visualization goals and quality criteria
- Understanding of fundamentals of visual perception
- Overview of data structures in visualization
- Basic algorithms (Isolines, color scales, diagramm techniques),
- Direct and indirect visualization of volume data
- map-based visualization
- dashboard design
- Information visualization

Workload:
56 contact hours + 94 h self study

Pre-examination requirements:	**Type of examination:**	**Teaching method / lecture hours per week (SWS):**
Successful participation in the exercise (voting system, vote for at least 2/3 of all tasks)	Written exam, 2hours	• 2 SWS Lectures • 2 SWS Exercise classes

Prerequisites according to examination regulations:	**Recommended prerequisites:**
none	• Module: Computer Graphics I •

Media:	**Literature:**

• Powerpoint presentation • Sketches • Videos	• P. and M. Keller (1994): Visual Cues, IEEE Computer Society PressT. Munzner (2015). Visualization Analysis and Design: Principles, Techniques, and Practice, A K Peters • W. Schroeder, K. Martin, B. Lorensen (2001): The Visualization Toolkit: An object-oriented approach to 3d graphics, 3. Aufl. Springer, Heidelberg • A. Telea (2014): Data Visualization: Principles and Practice, Second Edition, AK Peters (2. Auflage) • Munzner, T. (2014). *Visualization analysis and design*. CRC press. • Tominski, C., & Schumann, H. (2020). *Interactive visual data analysis*. AK Peters/CRC Press. • M. Ward, D. Keim, G. Grinstein (2015): Interactive Data Visualization: Foundations, Techniques, and Applications, Second Edition

Comments:

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