Three-Dimensional & Advanced Interaction

Winter

(in German: Three-Dimensional & Advanced Interaction)

Module-ID: FIN-INF-120286

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
TAI	6	Winter	starting at 1.	1 Semester	english	Master

Link:	LSF
Limited accessability:	true
Responsibility:	Christian Hansen
Lecturer:	Florian Heinrich
Classes:	• Lecture *Three-Dimensional & Advanced Interaction* • Seminar *Three-Dimensional & Advanced Interaction*
Applicability in curriculum:	- M.Sc. INF: Informatik - M.Sc. INGINF: Informatik - M.Sc. WIF: Informatik - M.Sc. DKE: Applied Data Science - M.Sc. DE: Methoden der Informatik - M.Sc. VC: Visual Computing

Intended learning outcomes:
Students ...

- understand the nature and importance of future user interfaces and the challenges and problems associated with them
- know, analyze and evaluate technologies, interaction techniques and methods for the development of advanced user interfaces
- are able to select suitable technologies and interaction techniques in the field of three-dimensional and modern Post-WIMP user interfaces
- have the ability to critically analyze scientific literature and knowledge of scientific publishing
- can conduct own research on a postgraduate level in the field of advanced user interfaces

Content:

- Introduction to Post-WIMP and Reality-based User Interfaces
- 3DInteraction: Tasks, Devices, 3D-Widgets,
- 3D UIs Augmented Reality Interaction
- Pen-based Interaction Techniques and Sketching
- Multitouch: Technologies, Gestures, Applications
- Gestural Interaction: Tracking, Freehand Gestures
- Tangible Interaction
- Advanced Topics: Gaze-based Interaction, Organic Interfaces, Everywhere Interfaces

Workload:
56h contact time + 124h self study

Pre-examination requirements:	**Type of examination:**	**Teaching method / lecture hours per week (SWS):**
Successful completion of the seminar (clarified in first lecture)	Written exam	• Lecture (2 SWS) • Exercise class (2 SWS)

Prerequisites according to examination regulations:	**Recommended prerequisites:**
keine	Module *Interactive Systems*

Media:	**Literature:**

	• Bowman, Kruijff, Laviola, Jr., Poupyrev: „3D User Interfaces: Theory and Practice“, Addison-Wesley, 2004 • Müller-Tomfelde (Ed.): „Tabletops – Horizontal Interactive Displays“, Springer, 2010 • Saffer: „Designing Gestural Interfaces“, O'Reilly Media, 2008 • Shaer, Hornecker: „Tangible User Interfaces: Past, Present and Future Directions“. In Foundations and Trends in Human-Computer Interaction, 3 (1), 2010

Comments:

Revision #1
Created 2026-10-31 09:01:01 UTC by Fakultät für Informatik
Updated 2026-10-31 09:01:01 UTC by Fakultät für Informatik