CHANGES TO OUR INFOVIS AND VISUAL ANALYTICS COURSE

A Perspective between Research and Application

Dr. Jörn Kohlhammer Fraunhofer IGD Fraunhoferstraße 5 64283 Darmstadt

Tel +49 6151 155 - 646 | Fax - 139 joern.kohlhammer@igd.fraunhofer.de www.igd.fraunhofer.de

1 Eurographics Panel, May 17th 2012 - Jörn Kohlhammer © Fraunhofer IGD





History of our Course

- New course "Information Visualization and Visual Analytics" at TU Darmstadt in 2006
- Collaboration between Fraunhofer IGD and TU Darmstadt
- Starting in 2007: Joint course with Tobias Schreck. TU Darmstadt (now University of Konstanz)
- Starting in 2011: Joint course with Tatiana von Landesberger, TU Darmstadt







2 Eurographics Panel, May 17th 2012 - Jörn Kohlhamme © Fraunhofer IGD





Content

- Relatively stable across the years, but with evolving emphases and ordering
- More and more practical exercises with real-world data repositories
- Content (roughly)
 - Information Visualization (A to Z)
 - Visual Analytics (IV and further disciplines)
 - Excursions on
 - Perception
 - Cognitive Science
 - Data Mining
 - Evaluation







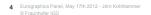
Strong Connection to Industry

- Business Intelligence
 - Various user types from decision maker (more information design) to analyst in the back office (more visual analytics)
 - Example: Company network analysis
- Finance
 - Large amounts of quantitative, structured, but also more and more unstructured data
 - Example: Portfolio risk analysis (customers, markets and their interdependency)
- Security
 - Emergency management to infrastructure protection
 - Example: Smart Grid risk analysis





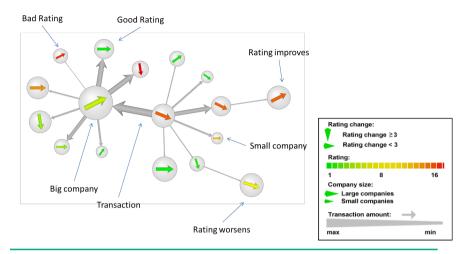








Example: Graphs for risk analysis



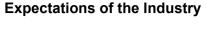
5 Eurographics Panel, May 17th 2012 - Jörn Kohlhammer © Fraunhofer IGD





Student Profiles

- Background
 - 40%: computer science
 - 30%: business informatics
 - 20%: mathematics
 - 10%: other (mostly psychology and engineering)
- Relatively strong programming skills
- Computer graphics affinity
- Increasingly motivated to learn visualization aspects for their business careers
- Strong connection to real-world use cases seen as an advantage on top of strong scientific content



- Strong background in
 - Main field of study (computer science, business informatics)
 - Depending on industry: programming skills, domain expertise, etc.
- More and more "big data" experience
 - Data management
 - Information visualization
 - Visual analytics
- Things they get from our students without asking
 - Information design
 - Visual thinking
 - Broad background, links and pointers to visual solutions for various data types and application areas

6 Eurographics Panel, May 17th 2012 - Jörn Kohlhammer © Fraunhofer IGD





Changes over the Years

- More practical exercises
 - Application of approaches and concepts, especially in the visual analytics area
 - Interdisciplinary combination of various disciplines (data mining, information visualization, data management)
 - Reasonably large data repositories
- Use cases from industry experience
 - Hands-on experience with real-world data sets and data types
 - Anonymized data sources
 - Involvement of students in e.g. the VAST challenge
- More jointly covered foundations of aspects common to information visualization and visual analytics
- Larger data sets





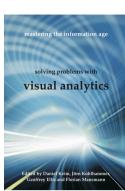






Outlook

- Our teaching goal
 - learn to think visually
 - convey information effectively
 - handle big data
 - learn the basics
- Future demand of industry
 - use big data as an advantage
 - graphically present data and information
 - follow trend to interact with information
- Information visualization and visual analytics becoming different emphases of the same trend
- Further build-up of IV&VA team at Fraunhofer IGD











CONTACT

Dr. Jörn Kohlhammer Fraunhofer IGD Fraunhoferstraße 5 64283 Darmstadt

Tel +49 6151 155 - 646 | Fax - 139 joern.kohlhammer@igd.fraunhofer.de www.igd.fraunhofer.de

10 Eurographics Panel, May 17th 2012 - Jörn Kohlhamme © Fraunhofer IGD



