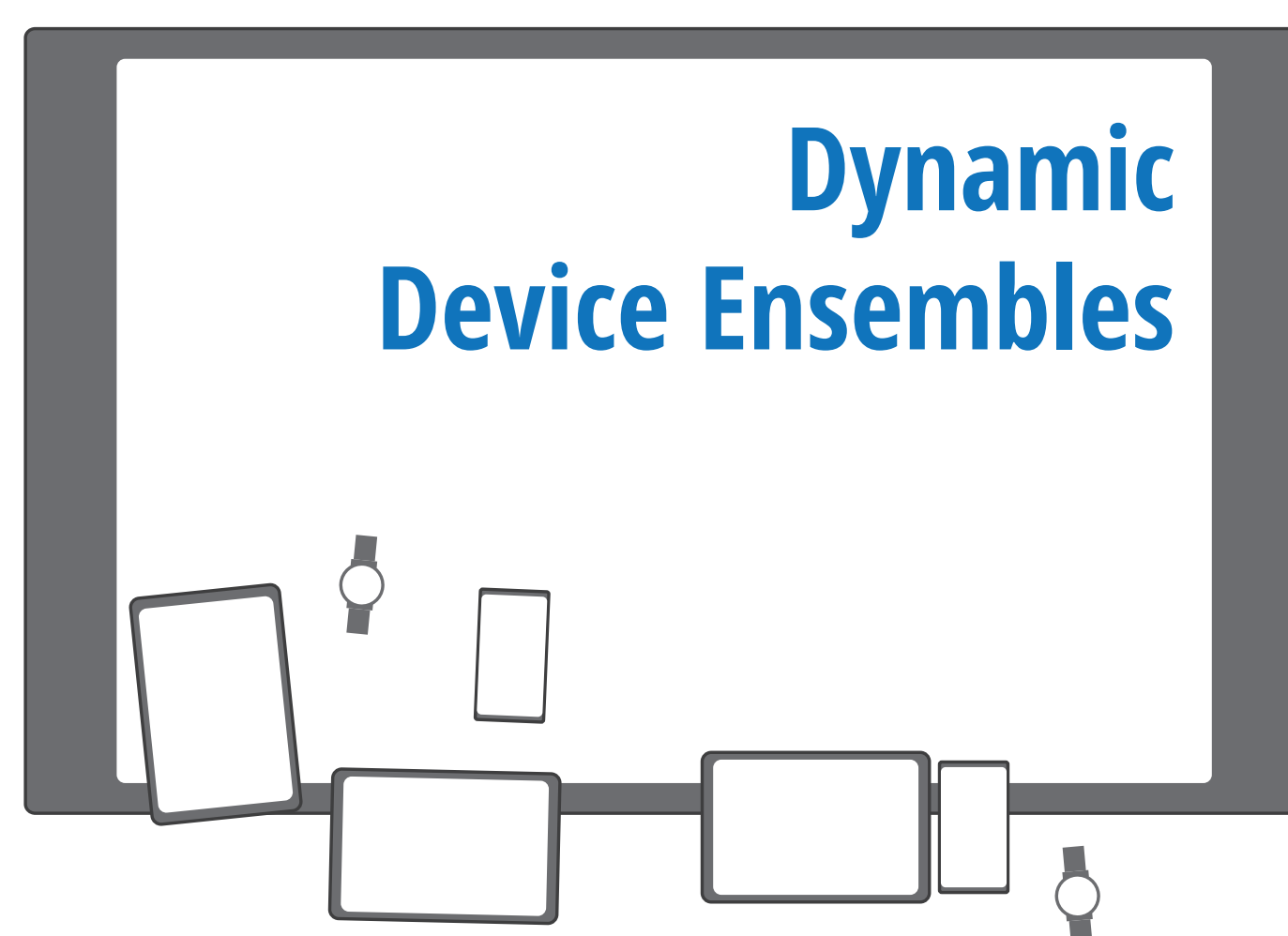


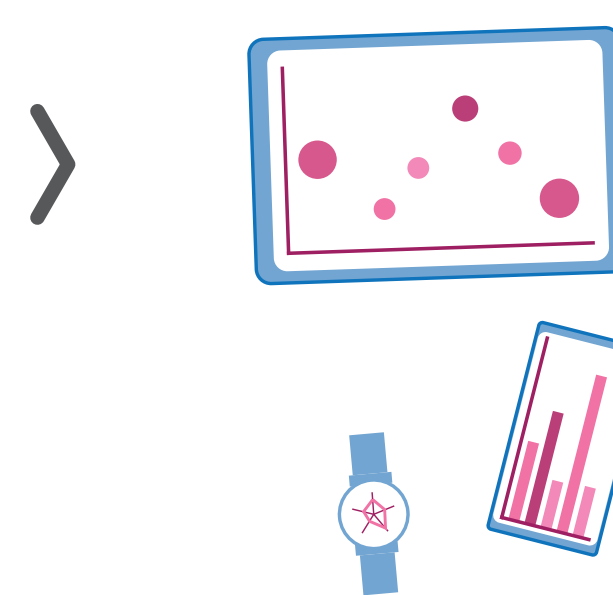
Designing for Visual Data Exploration in Multi-Device Environments

Tom Horak
Interactive Media Lab
Technische Universität Dresden
horakt@acm.org

How can we effectively work with interactive visualizations in dynamic device ensembles?



Objective 1
Device Ensembles for
Exploration Patterns



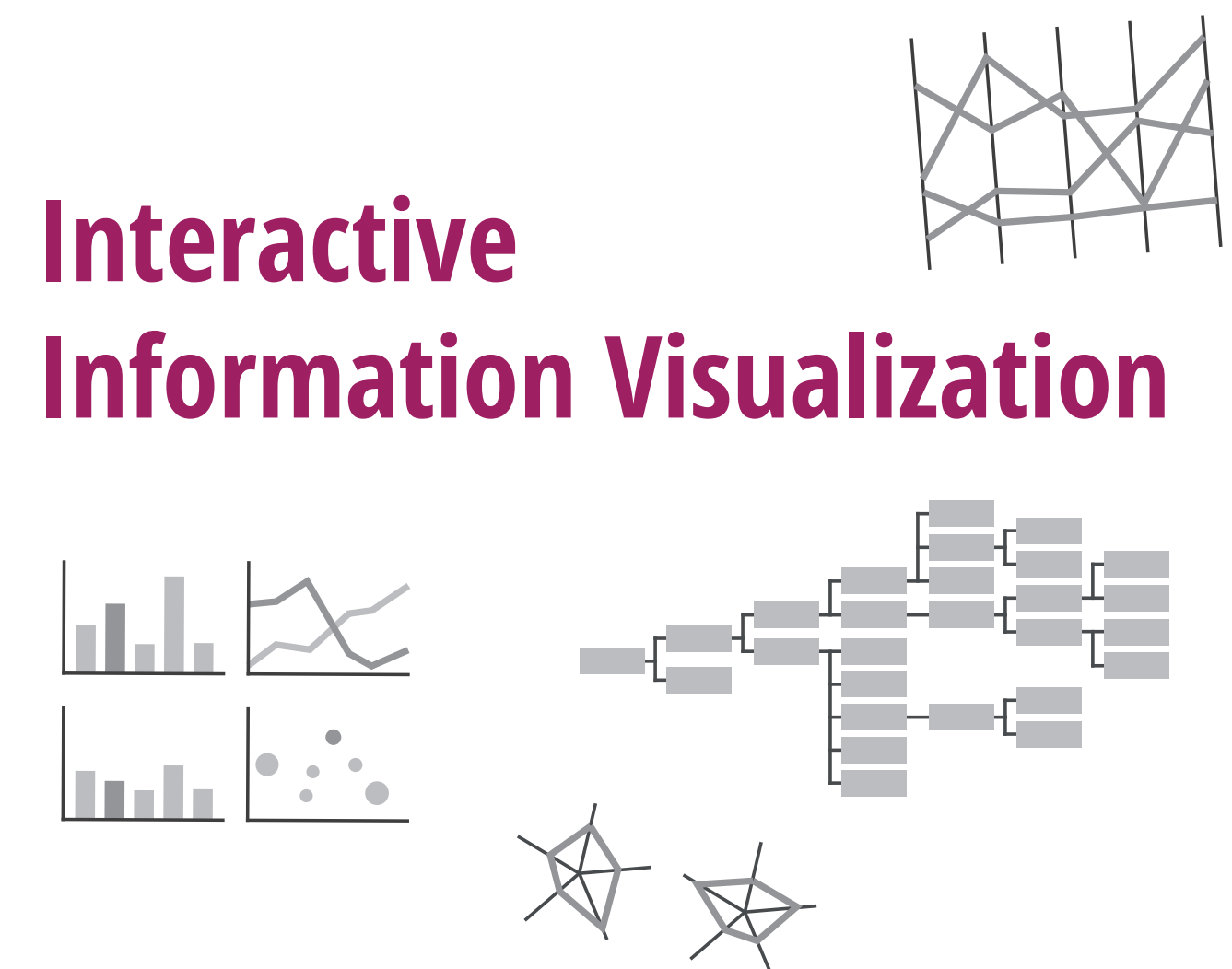
Objective 2
Visualization Consistency
across Devices

Objective 3

Visual Data Exploration

Design Space & Heuristics
for Interactive Visualizations
in Multi-Device Environments

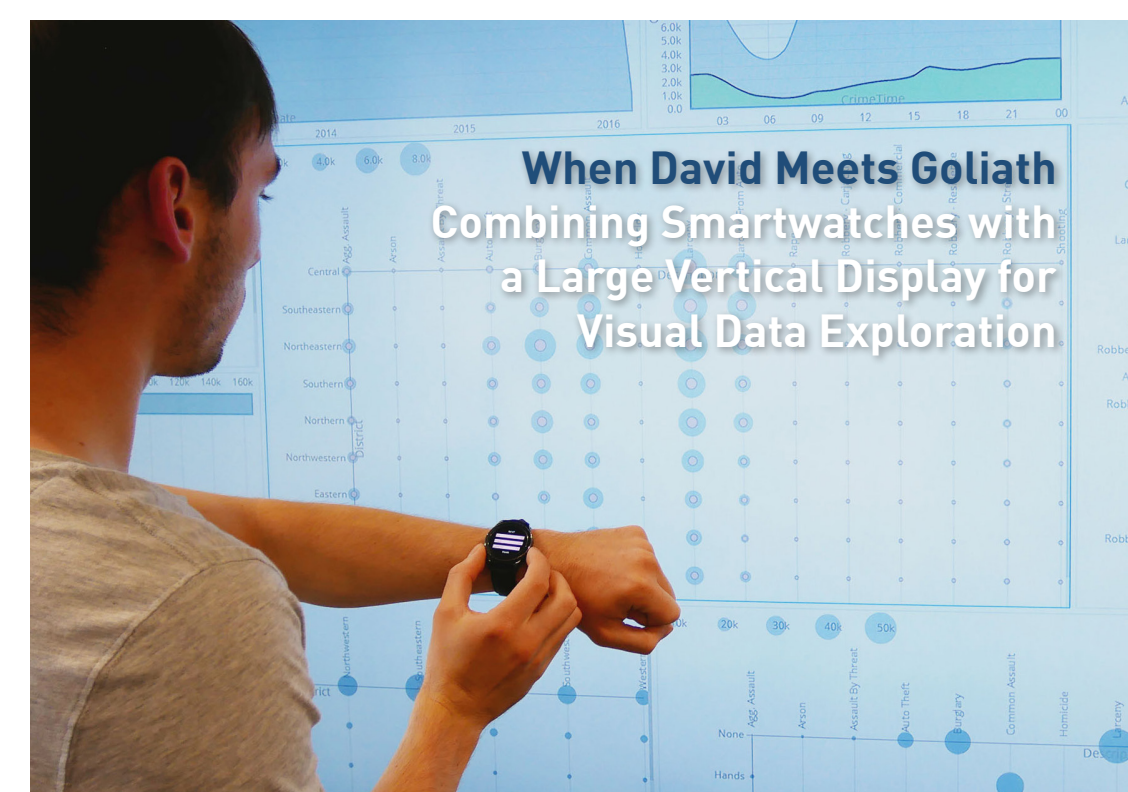
Interactive Information Visualization



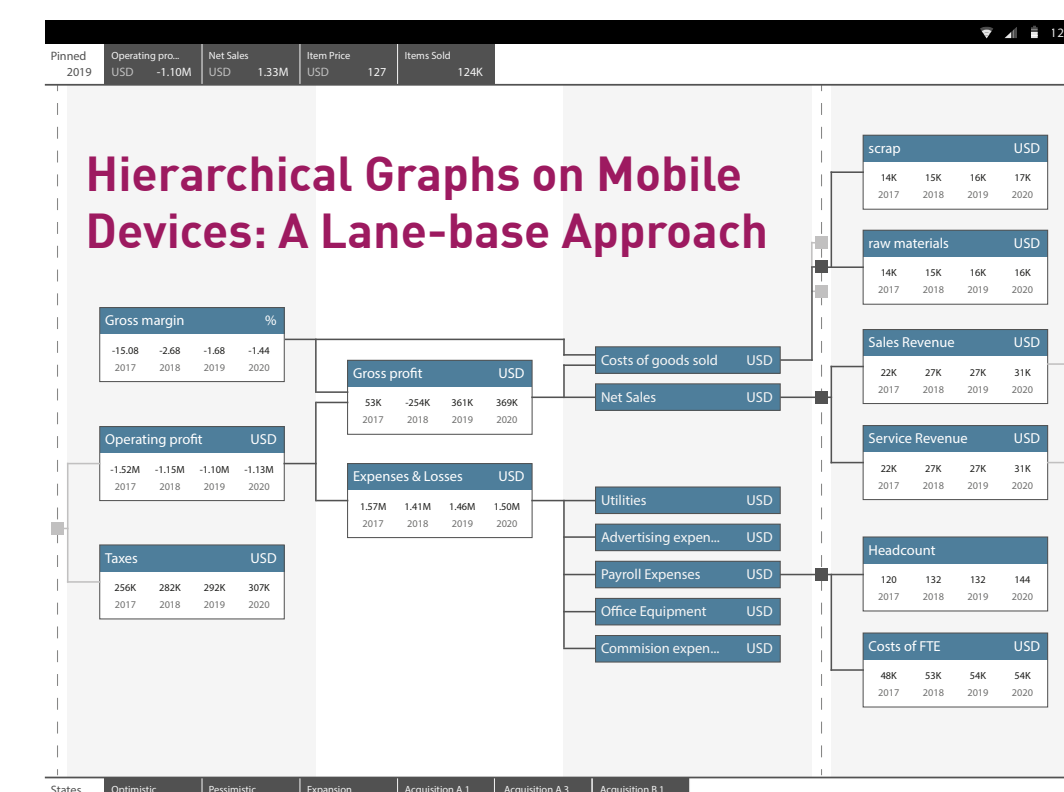
Incorporating Device Roles during the Data Exploration



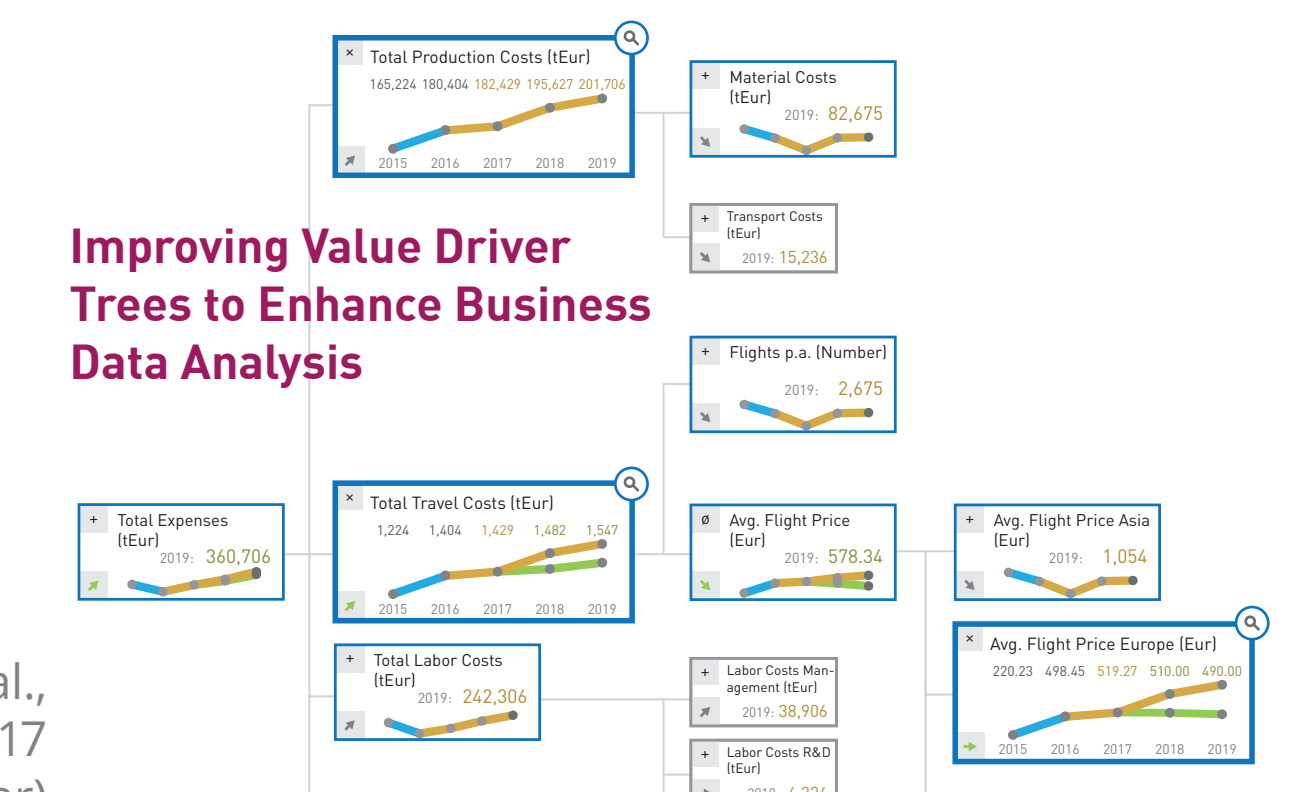
Langner et al.,
IEEE VIS 2017



Horak et al.,
ACM CHI 2018



Horak et al.,
ACM CHI 2018
(Workshop)



Horak et al.,
IEEE VIS 2017
(Poster)

We have a plethora of devices on our hand

- Each device has different strengths and shortcomings
- Device combinations allow maximizing the strengths
- But, what are the best strategies for data exploration?

Device roles can emerge from different sources:

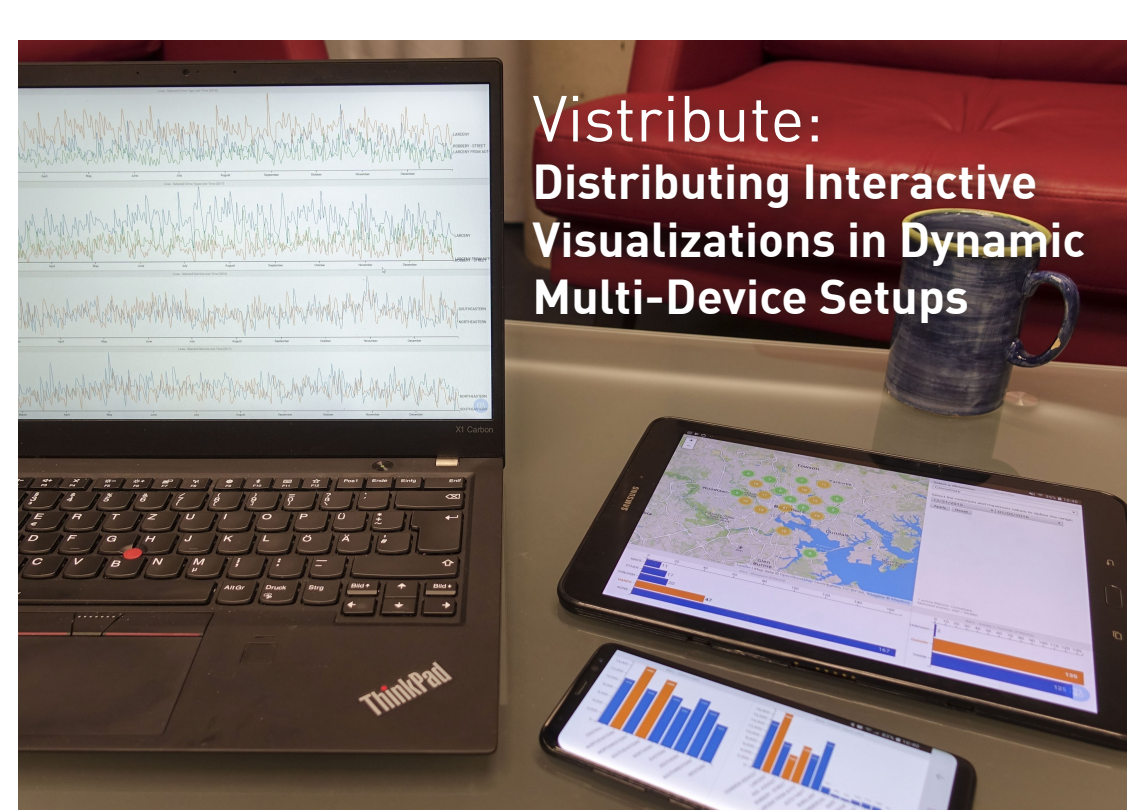
- Data exploration patterns, e.g., overview+detail or focus+context
- Multi-user constellations, e.g., personal or shared devices

We have a rich set of techniques to visualize data

- Visualizations differ a lot in complexity and space requirement
- Multiple visualizations can complement each other
- So, how can we optimize visualizations for different devices?

Visualizations can be adapted by varying their level of detail

- Constrained layouts can bring complex views to small devices
- Local adaptations (e.g., semantic zoom) can maximize space usage



Horak et al., ACM CHI 2019 - *join my talk!*

Session: Tuesday, 14:00, Room Hall 1, 1st talk
Display, Devices, and Interaction for Visualization

Bringing Devices and Visualizations Together

Manually configuring devices and arranging interface is exhausting

- So, how can we effectively support users?
- Visualization have rich body of characteristics compared to general views
- Incorporating their properties and relationships can allow to provide an automatic distribution for a given device ensemble

More about me

Hi, I'm Tom Horak.

- I'm interested in the area of InfoVis as well as natural user interfaces (NUIs)—and their combination
- I'm a 2nd year Ph.D. student at the Interactive Media Lab Dresden, planning to finish in late 2020
- My supervisor is Raimund Dachsel

Contact data & links:

- Email: horakt@acm.org
- Twitter: @tomhorak21
- Medium: @tomhorak
- Web: tom-horak.de

