Requirements for Visual Interaction Analysis Systems

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Add chart
Filter data
Zoom in
Pan left
Show details
...
Visual Interaction Analysis

Gray et al., 1996

Blascheck et al., 2016

Jeong et al., 2008
Limitations
Limitations

• Lack of Flexibility
  • Single set of categories (e.g., encode, select,...)
Limitations

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  - Single set of categories (e.g., encode, select, ...)

- Insufficient Scalability
  - Small scale interaction dataset
Limitations

• Lack of Flexibility
  • Single set of categories (e.g., encode, select, …)

• Insufficient Scalability
  • Small scale interaction dataset

• Limited Generalizability
  • Applicable only to a specific interaction dataset
Requirements

Flexibility
Single set of categories

Scalability
Less scalable techniques

Generalizability
Specific interactions
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Tasks

Requirements

Flexibility
- Single set of categories
- ...
- ?

Scalability
- Less scalable techniques
- ...
- ?

Generalizability
- Specific interactions
- ...
- ?
Interaction Analysis Tasks
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- **Assess Usability**
  - Ease of use and learning
  - e.g., Random ➤ Consistent patterns
Interaction Analysis Tasks

- **Assess Usability**
  - Ease of use and learning
  - e.g., Random ➤ Consistent patterns

- **Assess Utility**
  - Find insights
  - e.g., Bookmark (Visual Insight Action, Gotz and Zhou, ‘08)
Interaction Analysis Tasks
Interaction Analysis Tasks

- Learn About Users
  - e.g., Novice and Expert Users
Interaction Analysis Tasks

• **Learn About Users**
  - e.g., Novice and Expert Users

• **Understand Usage Patterns/Analysis Methods**
  - e.g., Visual Information-seeking Mantra
    
    “Overview first, zoom and filter, then details on demand.”
    (Shneiderman, ‘96)
Tasks

Requirements

Flexibility  Scalability  Generalizability
Tasks

Requirements

Flexibility  Scalability  Generalizability
Tasks

Requirements

Flexibility  Scalability  Generalizability

Select Events  Click Zoom In  Click Zoom Out  Select Item  Remove Item
Tasks

Requirements

- Flexibility
- Scalability
- Generalizability

Select Events

- Click Zoom In
- Click Zoom Out
- Select Item
- Remove Item
Tasks

Requirements

Flexibility

Extract Sequences

Define Categories

Select Events

Zoom and Filter

Zoom

Zoom

Filter

Click Zoom In

Click Zoom Out

Select Item

Remove Item
Tasks

Requirements

Flexibility

Scalability

Generalizability

Configurable Visualization
Tasks

Requirements

Flexibility

Scalability

Generalizability

Zoom and Filter

Zoom and Filter

Zoom and Filter
Tasks

Requirements

Flexibility  Scalability  Generalizability

Sequential Pattern Mining

Zoom and Filter  Zoom and Filter  Zoom and Filter
Tasks

Requirements

Flexibility

Scalability

Generalizability

Automated Computational Assistance
Tasks

Requirements

Flexibility  Scalability  Generalizability

Applicable to Any Visualization Applications
Requirements

• **Flexibility**
  - Support Event Organization
  - Provide Configurable Visualizations

• **Scalability**
  - Include Automated Computational Assistance

• **Generalizability**
  - Apply to Any Visualization Application
Visual Interaction Analysis System
Demo at the Event Event workshop (4:15 pm) tomorrow
Thank you

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