Visualisierung – SS14

Meilian Ahmad Rizal

Theme

- Tuning and Testing Scrolling Interfaces that Automatically Zoom
- Topology-Aware Navigation in Large Networks

Tuning and Testing Scrolling Interfaces that automatically Zoom

Overview:

• describes our attempts to better understand human perceptual foundations of systems that automatically change zoom-level with scroll speed.

• three suggestions for theoretically-based automatic zooming:

- ➔ normal scrollbar
- ➔ Traditional rate-based scrolling
- ➔ SDAZ system

Tuning and Testing Scrolling Interfaces that automatically Zoom

Speed dependent automatic zooming (SDAZ)

➔ is a promising refinement to scrolling in which documents are automatically zoomed-out as the scroll rate increases.

"the faster you scroll, the

'higher' you fly"

➔ SDAZ based on a strong theory that yields optimal animations in pan/zoom space.

Tuning and Testing Scrolling Interfaces that automatically Zoom

Human processing of visual flow

- Visual signals are summated over a period of approximately 120-125ms in daylight.

- Visual blurring of moving objects is less than 120ms.

- Smooth-pursuit eyetracking of objects up to angular velocities of approximately 100° per second.

Tuning and Testing Scrolling Interfaces that automatically Zoom

CALIBRATING THE BEHAVIOUR OF AUTOMATIC ZOOMING

- ➔ manipulation of the scroll-thumb
- ➔ mapping is from position to position
- ➔ the scroll position changes

Tuning and Testing Scrolling Interfaces that automatically Zoom

SDAZ systems used a linear speed-scale relationship

$$speed = \left| Y_{ip} - Y_{cp} \right|$$

$$scale = k \times (speed - threshold)$$

- *"Yip and Ycp" represent the mouse-down and* current y-coordinate of the mouse.
- *k is a constant governing* the rate of zooming
- *threshold is a constant governing* the minimum scroll-speed prior to zooming.

Topology-Aware Navigation in Large Networks

- **„Link Sliding“**

  ➔ Provides guided panning when continously dragging along a visible link

  ➔ allows users to slide along a link to its destination

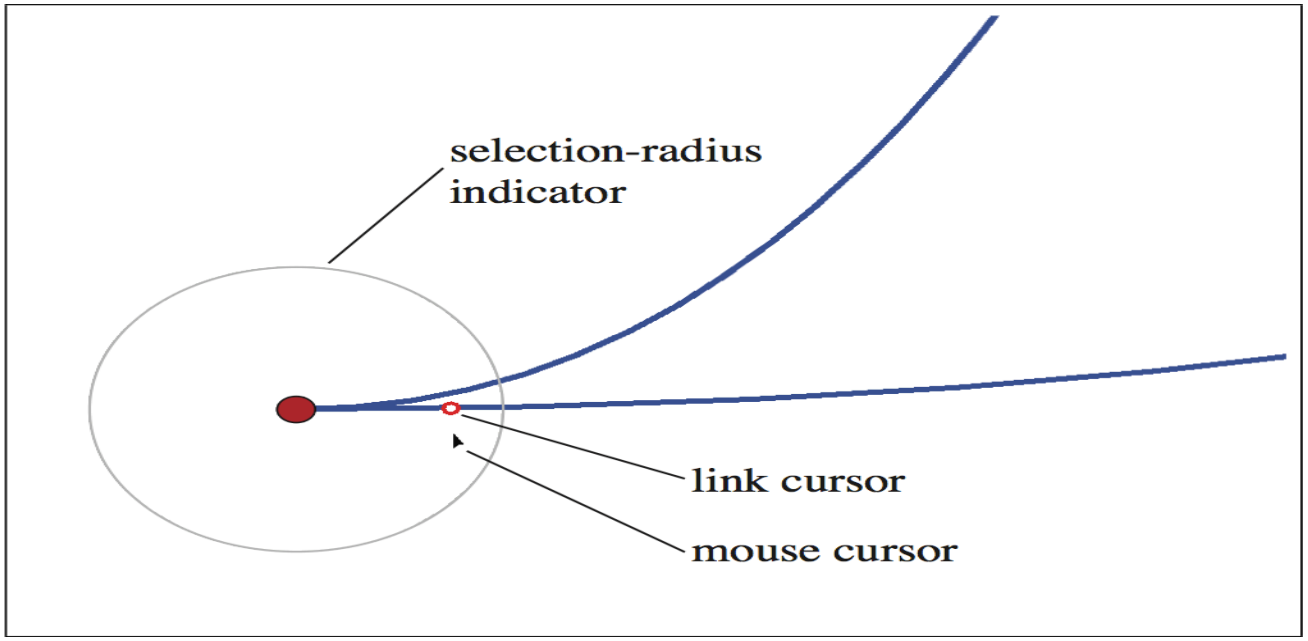
  ➔ Link Sliding makes it easy to navigate along a given path.

Problem:

- it does not help in the decision process that leads to the selection of one path among many potential candidates.

Topology-Aware Navigation in Large Networks

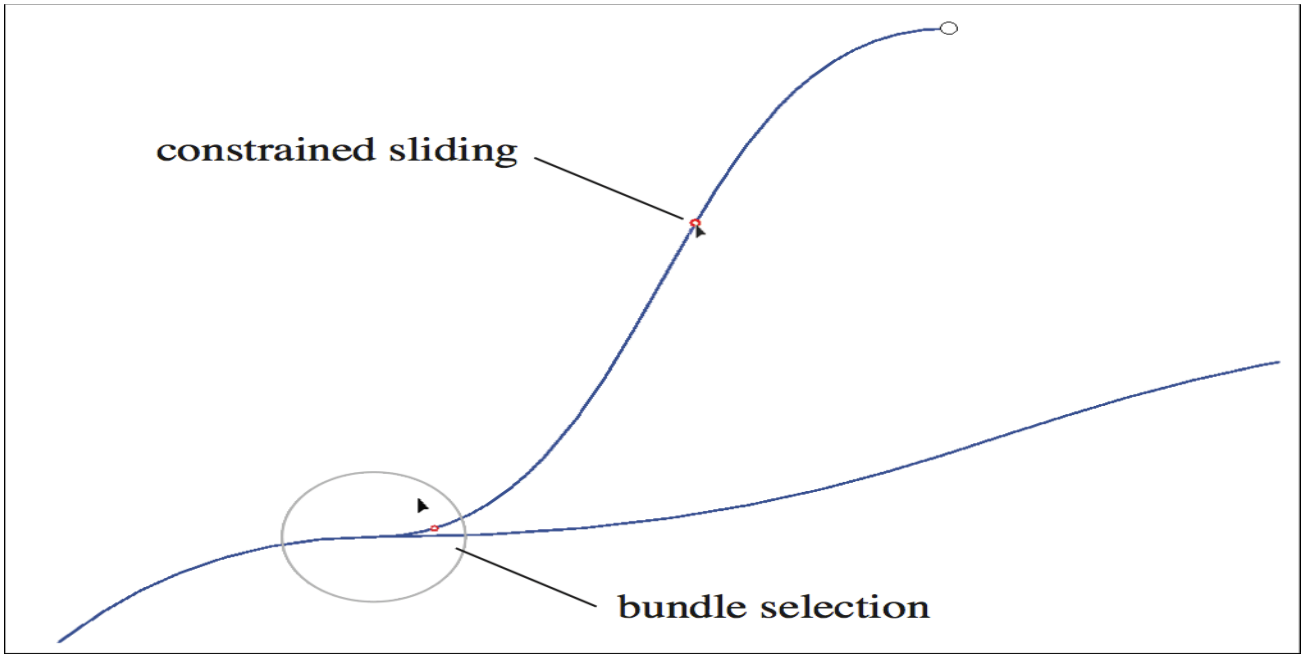
- **„Link Sliding“**



To activate Link Sliding, the user simply presses and holds the mouse button on the start node.

Topology-Aware Navigation in Large Networks

- **„Link Sliding“**



To activate Link Sliding, the user simply presses and holds the mouse button on the start node.

Topology-Aware Navigation in Large Networks

- **„Bring & Go“**

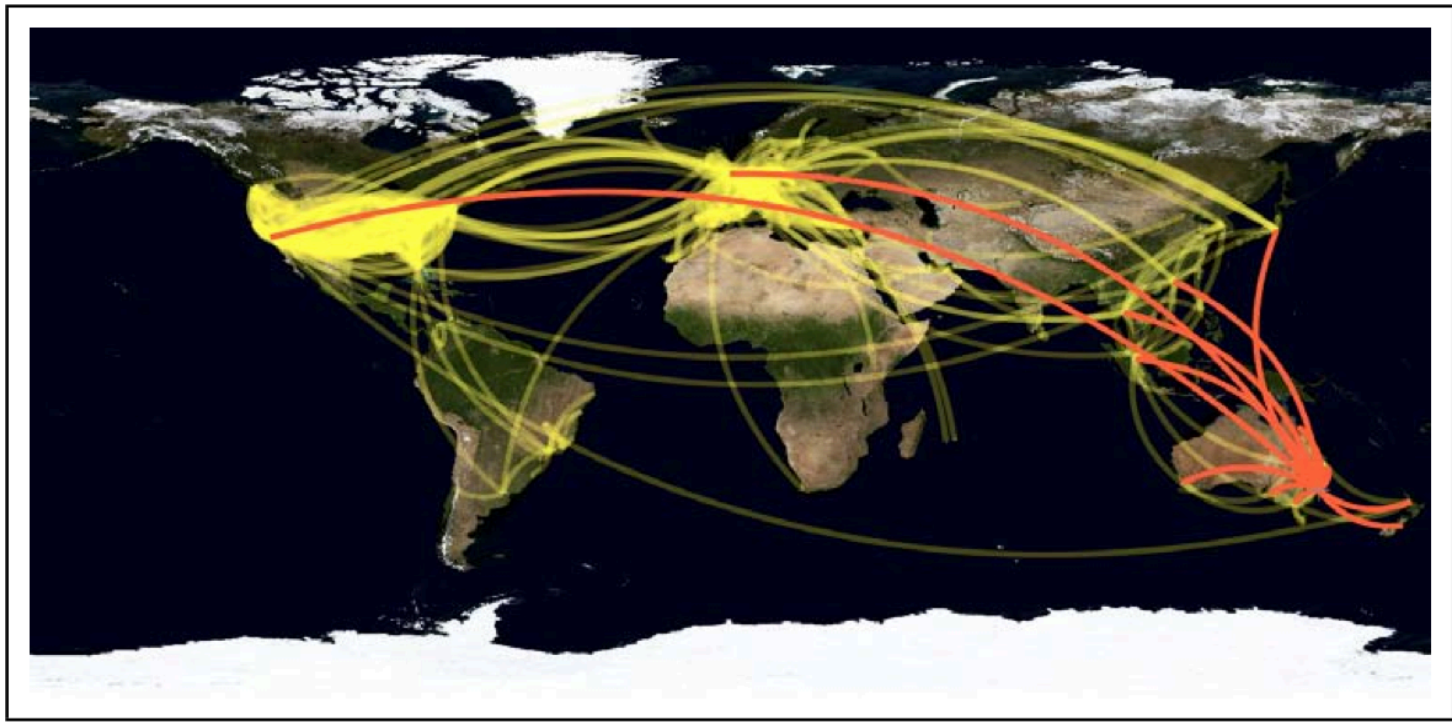
  ➔ brings adjecent nodes nearby when pointing to a node

  ➔ brings all possible destinations within the users view, and automatically transports the user to the selected point.

  ➔ makes it very easy to reach the corresponding node with a simple selection of that node.

Tuning and Testing Scrolling Interfaces that automatically Zoom

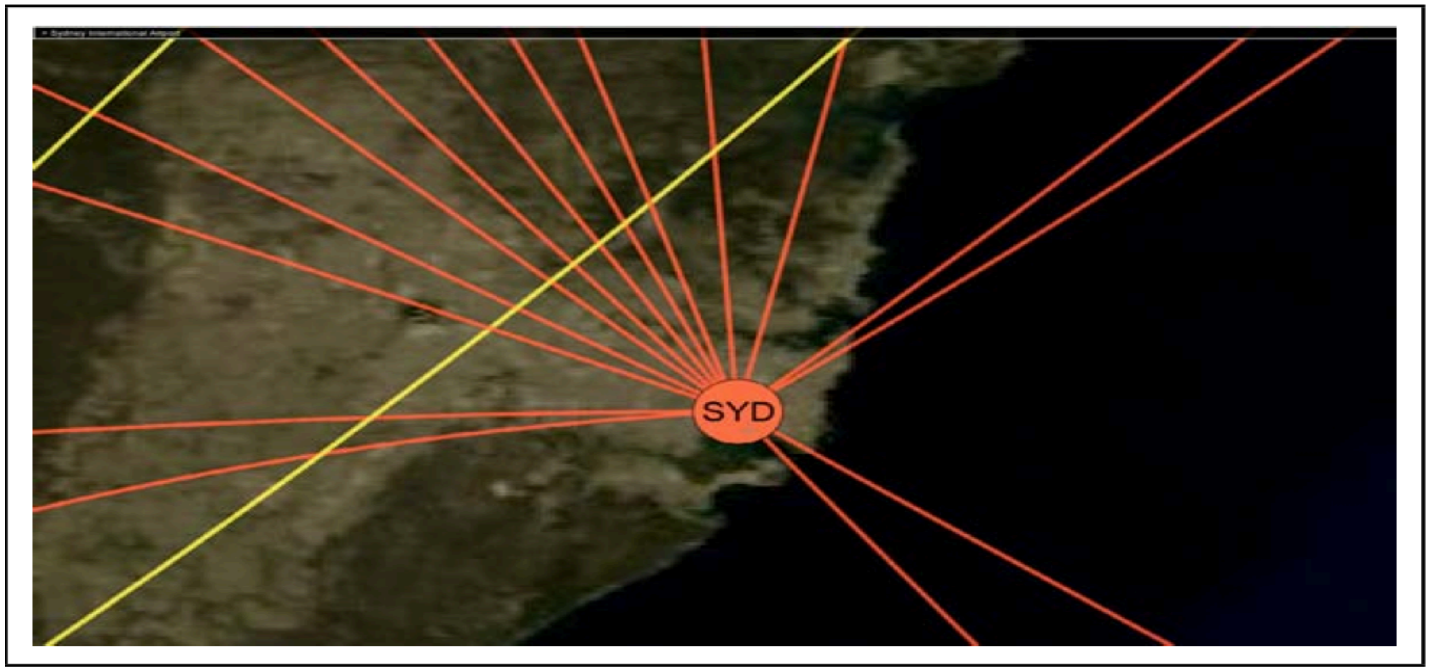
Bring & Go



Highlighting all flights to/from Sydney

Tuning and Testing Scrolling Interfaces that automatically Zoom

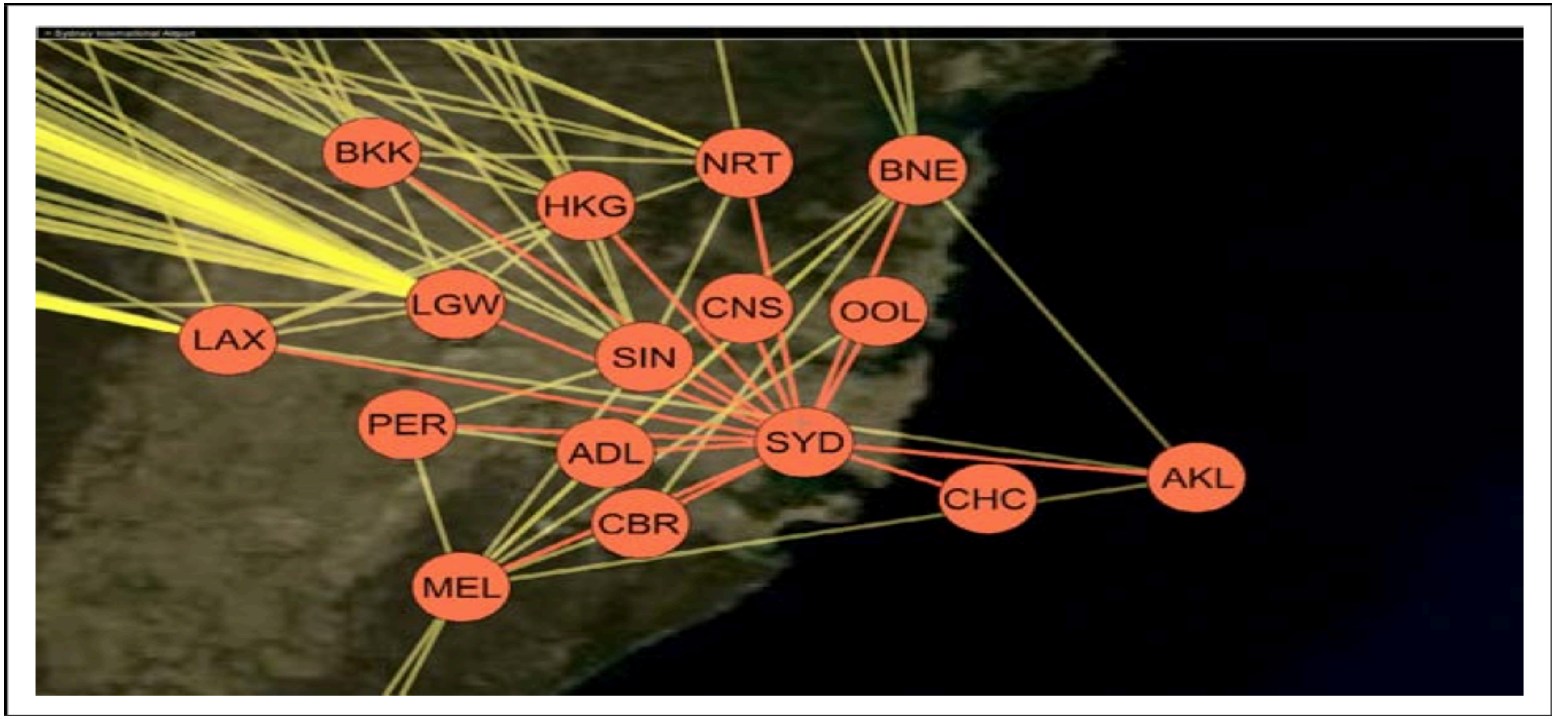
Bring & Go



Close up on Sydney with highlighting

Tuning and Testing Scrolling Interfaces that automatically Zoom

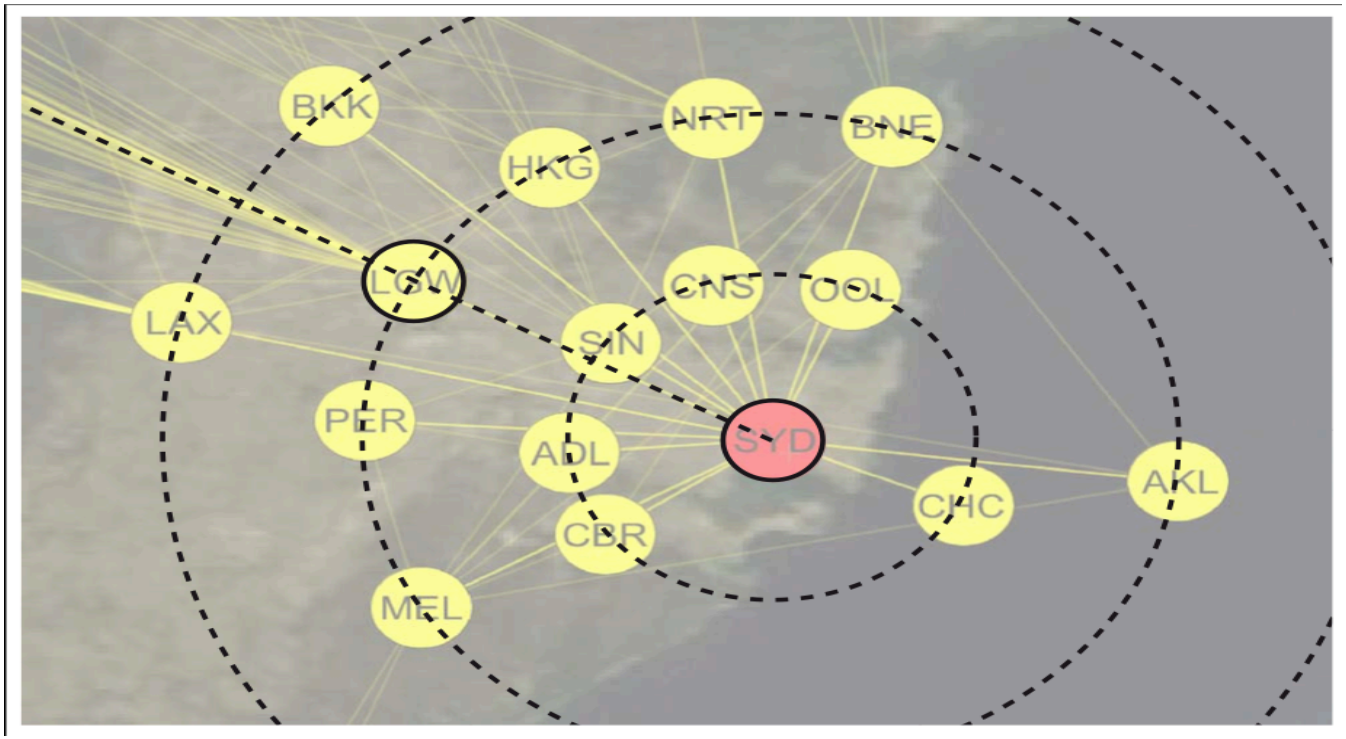
Bring & Go



Initiated on Sydney

Topology-Aware Navigation in Large Networks

- **„Bring & Go“**



References :

1. Topology-Aware Navigation in Large Networks. “Tomer Moscovich, Fanny Chevalier, Nathalie Henry, Emmanuel Pietriga, Jean-Daniel Fekete „

2. Tuning and Testing Scrolling Interfaces that Automatically Zoom. “Andy Cockburn , Joshua Savage , Andrew Wallace”

Thank you for your attention