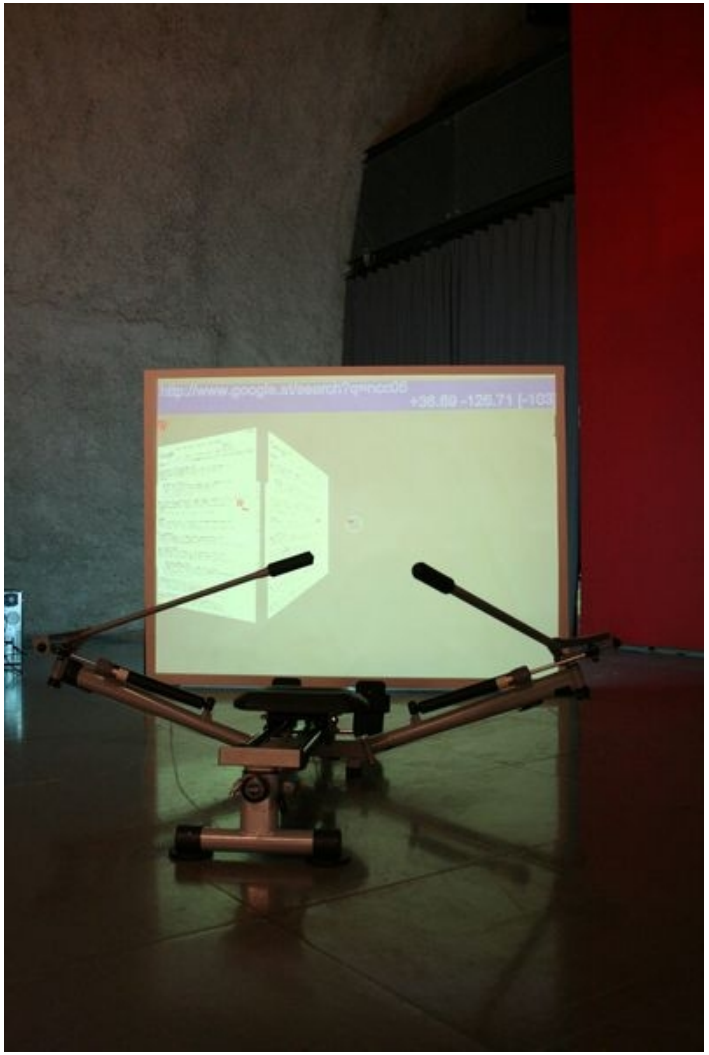
Row the Net

Row the Net



- Introduction
  - background
- Implementation
  - hardware
  - software
- further development
- Conclusions

Row the Net

- raise awareness of social & cultural connectivity
- bring this into relation with geographical connectivity
- allow user to experience the *connection* rather than the *connected*

Row the Net

exploring the WWW

- haptic webbrowser
  - real physical interaction
- 3D-visualisation
  - semantic/cultural/ geographic conn.
- dynamic space
  - interactive reconfiguration of space

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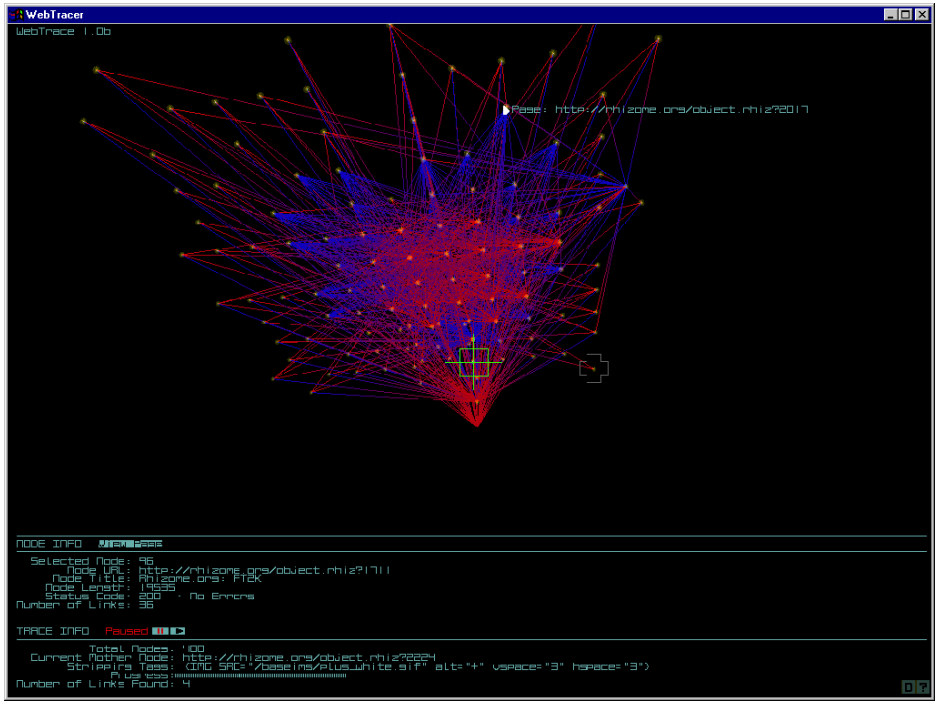
Row the Net

- network visualization
  - typical “net.art”
  - usually non-interactive
  - technical parameters
    - abstract IP-space
  - region of interest
    - mapping of the entire “known world”
      - e.g. W. Ritsch: *route-tracer*
    - probing

Row the Net



- new interactive interfaces to the WWW
  - „Browser Art“
  - e.g. *webtracer* (nullpointer)

Row the Net

- physical interfaces to semantic worlds
  - Geoffrey Shaw: *The legible City*

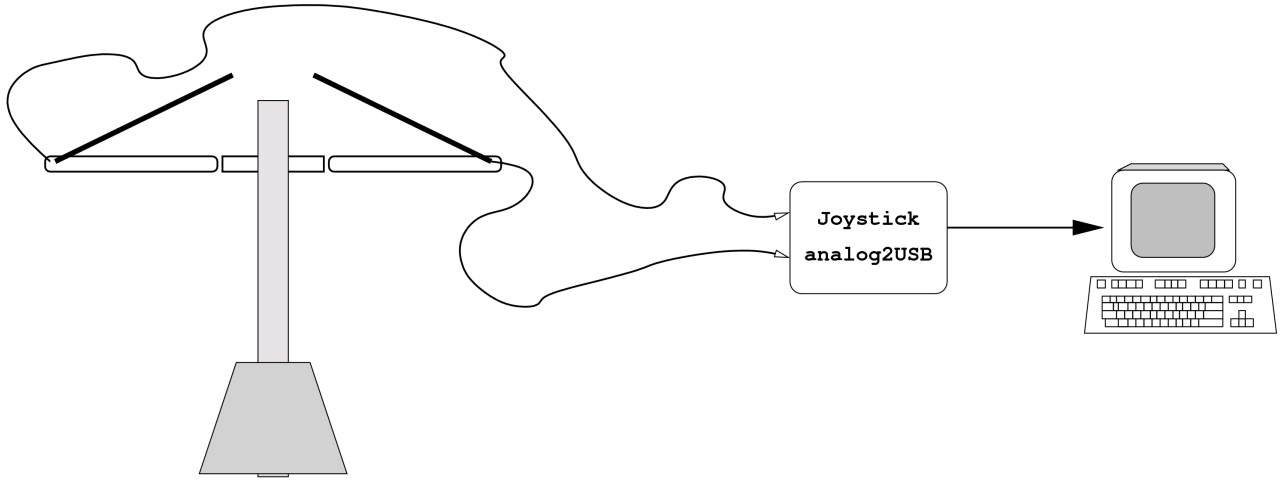
Row the Net

[video]

Row the Net

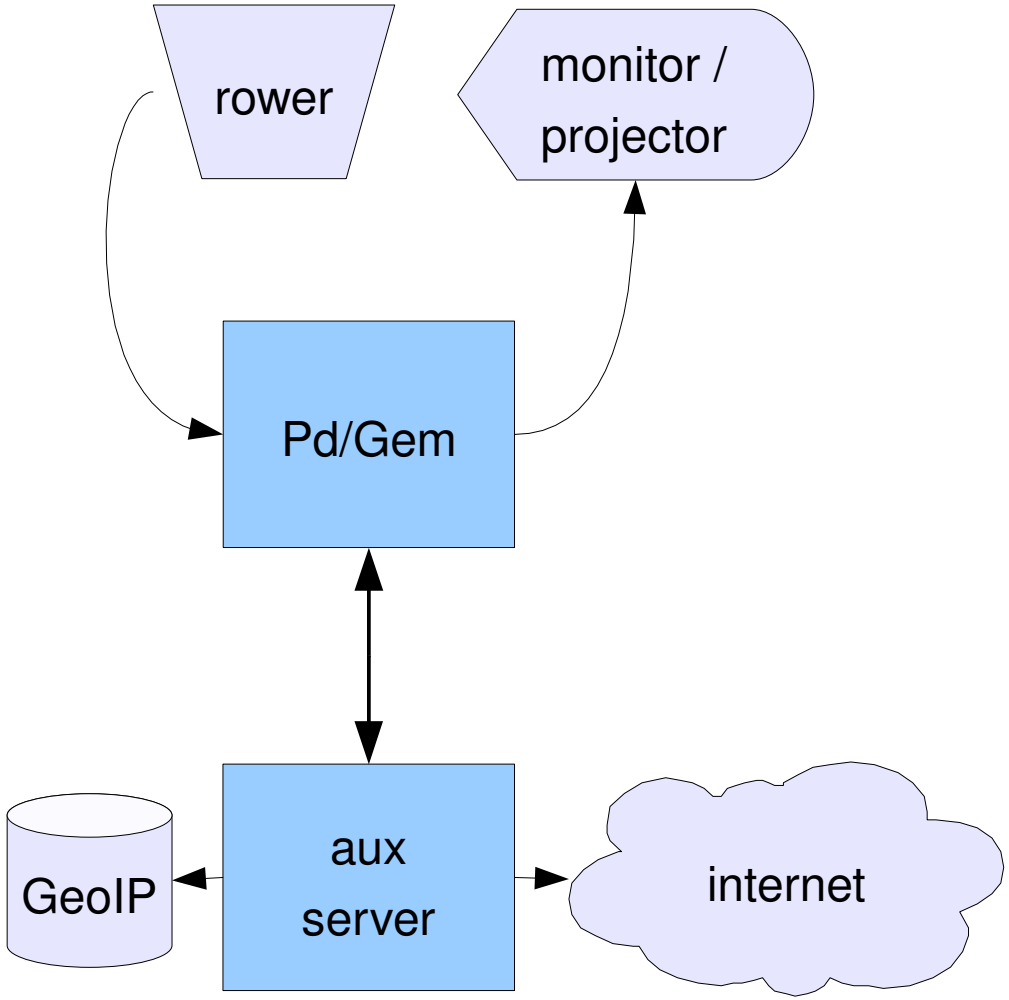
- physical interface
  - **hard work!**
  - standard rowing exercise machine

Row the Net



- rower → 2 „independent“ movements
  - left/right hand
  - 2 potentiometers
    - 1 per „oar“
  - joystick: analog-to-USB converter
    - HID-data

Row the Net



- System
  - Linux (Debian)
  - Pure data / Gem
    - hardware interfacing
    - visualization
  - auxiliary daemon
    - snapshots of websites
    - link extraction
    - geographic data

How to get websites into the system?

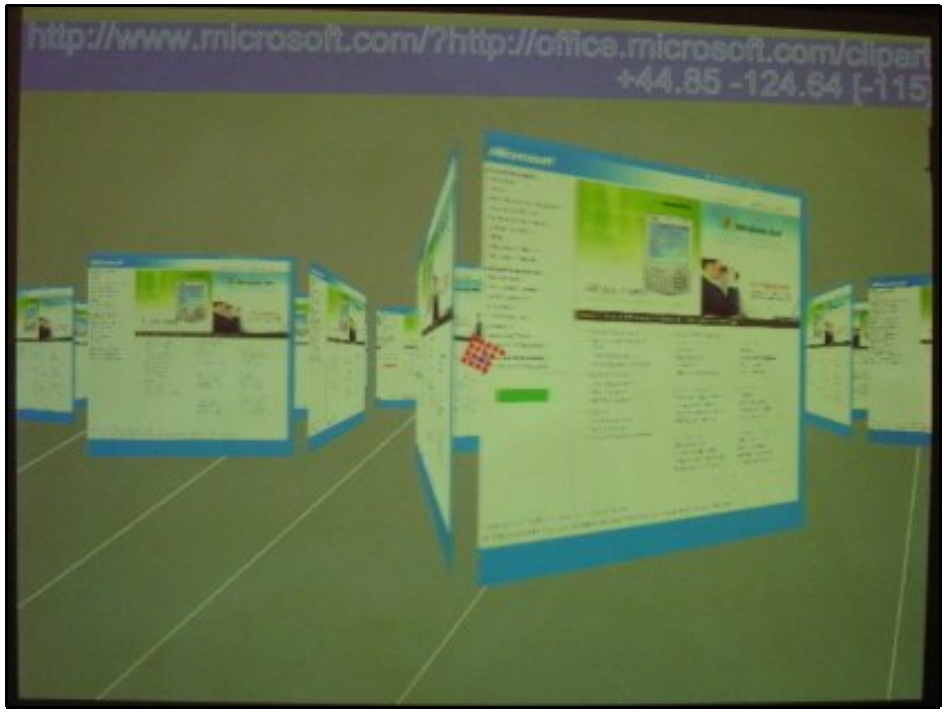
- GUI tools
  - focus stealing (pop-ups!)
  - not scriptable (remote control)
- online-solutions
  - resource intensive
    - don't want to get banned!

Row the Net

- *khtml2png*
  - command line tool
  - off-screen rendering
  - Konqueror HTML-rendering engine
    - Safari/Konqueror
  - additional bonus of link-extraction
  - Open Source!

Row the Net

browsing...

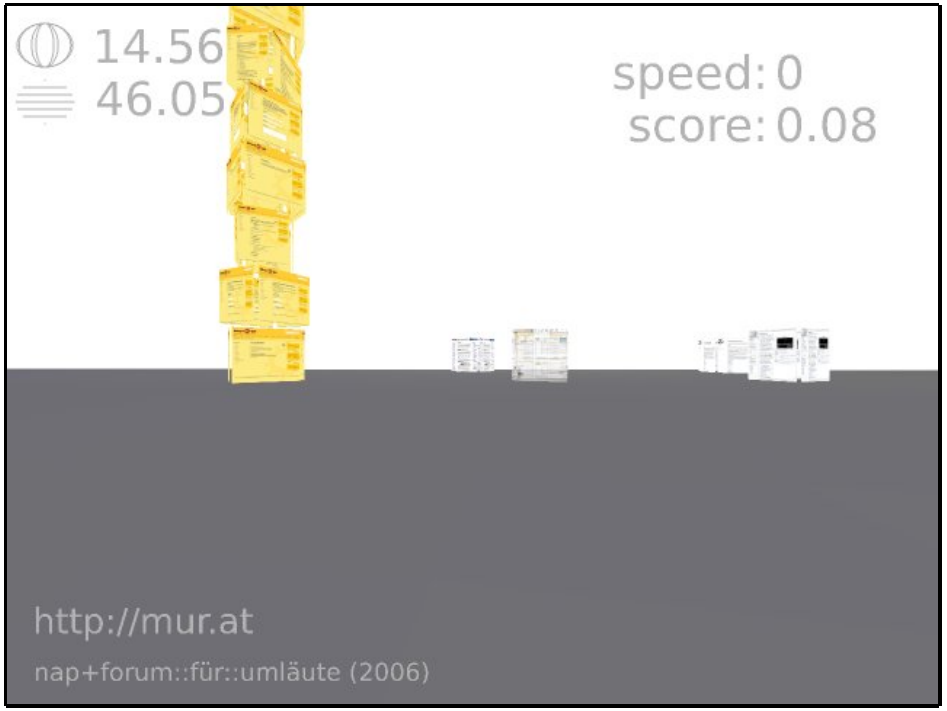


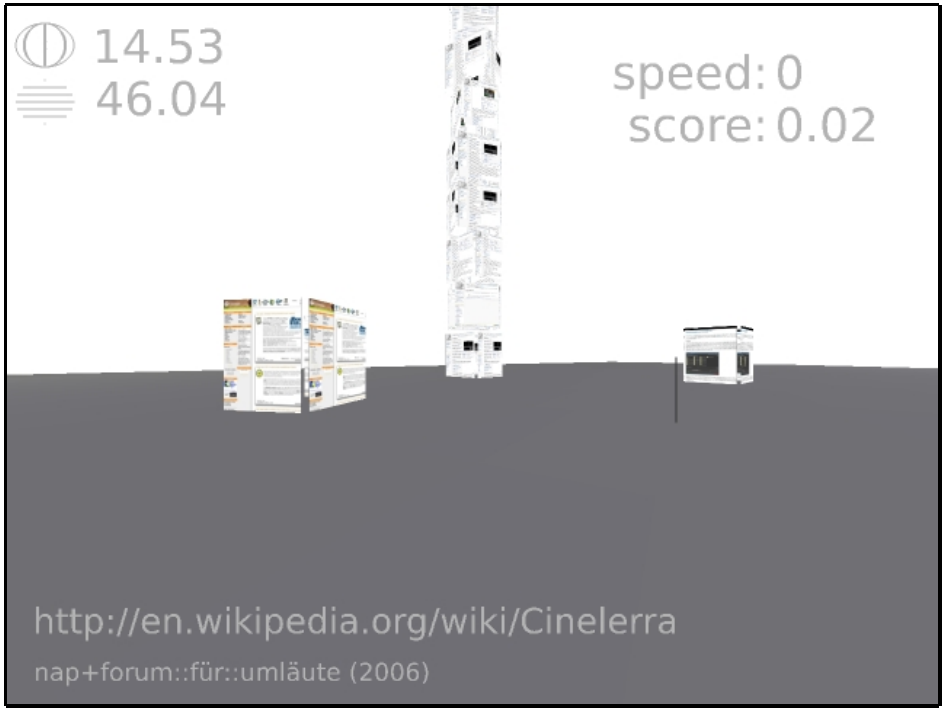
- all links visible
  - links from *current* page
- enter a site:
  - just row into it
- virtual hosts
  - flat clusters
  - towers
    - paternoster

Row the Net

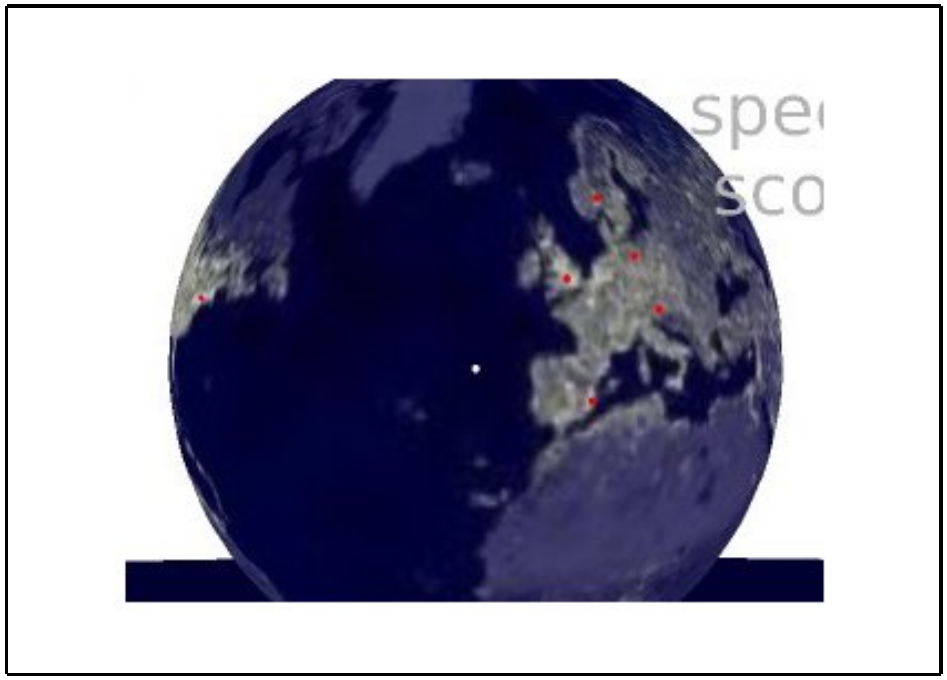
visualisation

- mapping web pages



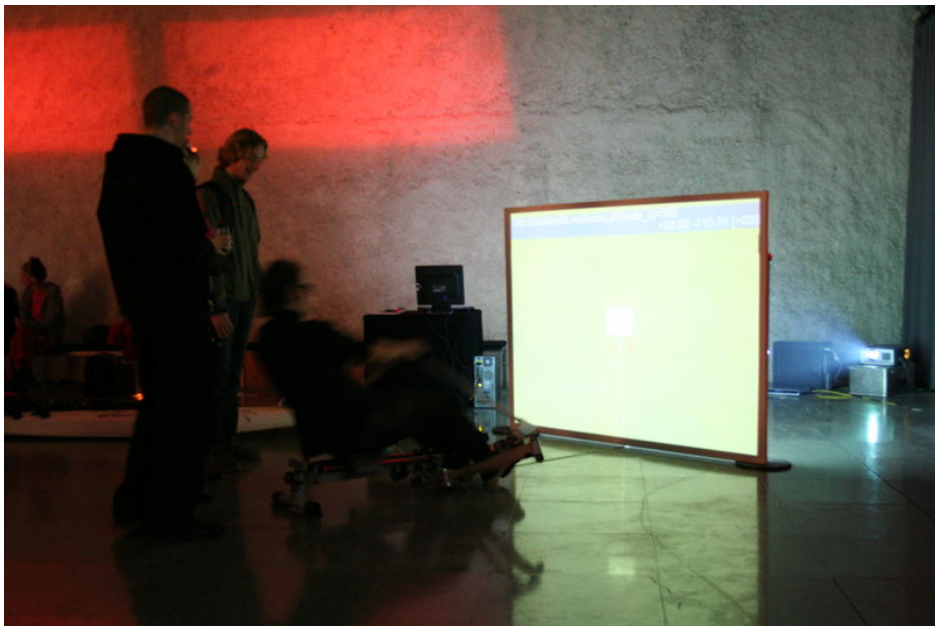


Row the Net



- spatial mapping
  - GeoIP services
    - online
    - latitude / longitude of server
  - same position → neighbourhood

Row the Net



- long distances between pages
  - cross the Atlantic
  - navigation on „empty screen“
  - flat world
  - great circle navigation
- **row, row, row!**

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Row the Net

- Problem
  - several pages visible at the same time
  - not just *current* page
  - also *pages linked* from current page
- Solution
  - asynchronous
    - pages pop up as they are grabbed
  - caching

Row the Net

- Problem
  - page types involving interaction
- ignore forms — just viewing
  - no keyboard!
- ignore “problematic” content
    - self-signed certificates require user-interaction
    - not-installed plugins
  - filter out content (based on URL)

Row the Net

back!

- “Back” functionality
  - requires keeping history
  - avoid jamming of old sites
- → simply no “back” functionality
  - dead-ends?
  - inspect sites whether they contain links
    - do not expose dead-links

Row the Net

- Race-the-Net
  - game-like environment
    - racing wheel game controller
  - fast!
    - hard to “hit” pages
  - scoring
    - linking far away pages gives points

Row the Net

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- different browsing behaviour
  - avoid long distances
    - rowing is exhausting
- connectedness
  - traditional sites
    - small sites, highly interlinked
  - modern sites
    - portal
    - hardly any links outside

Row the Net

- geographical distribution
  - not very surprising
    - Europe
    - North America (East Coast, West Coast)
    - Australia / Japan
    - ~~Yemen~~
  - net.art communities
    - concentration at certain places
      - e.g. mur.at ↔ Graz,AT