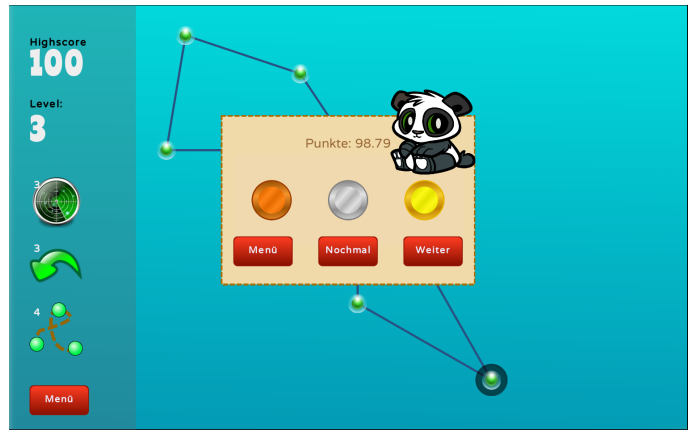# Pearl Diving
Data for TSP Research from an Online Game

Tim Rach, Alexandra Kirsch
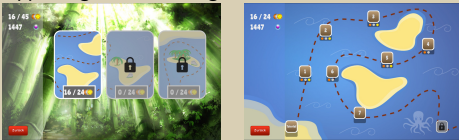
alexandra.kirsch@uni-tuebingen.de

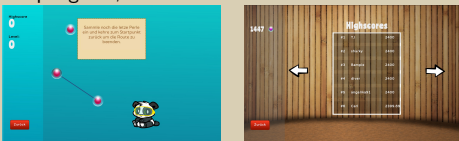**www.perlentaucher.medieninformatik.uni-tuebingen.de**

Motivation

- ▸ Goal: collect large data set of human TSP solutions
- ▸ Idea: use social online game as a playful way to make people solve TSPs
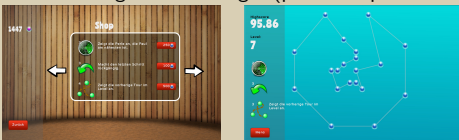
Social Gaming Approach

- ▸ Appealing, colorful design
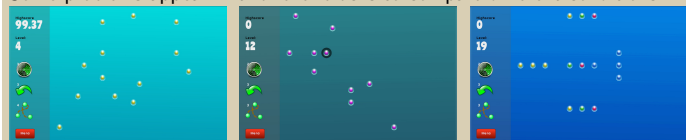

- ▸ Simple game, introduced with instruction level

- ▸ "Mascot" Paul (the pearl diver)
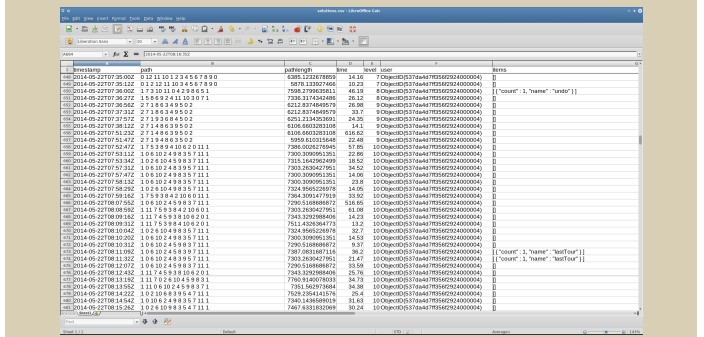- ▸ Purchasable game advantages (paid with pearls earned during the game)

Levels

Levels 1–8 given set of points, starting point not given

Levels 9–16 given set of points, starting point given

Levels 17–24 given set of points with different colors (no special instruction), starting point for some levels given

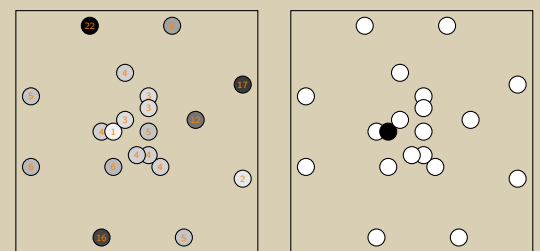Some problems appear in two level blocks to compare different conditions.

Data

- ▸ Data for each completed run:
  level, player id, path, path length, time, used game advantages
- ▸ More than 2000 completed runs by more than 50 players
- ▸ Download: http://hci.uni-tuebingen.de/Datasets

Use of Data

- ▸ Data of first trials shows comparable results to previous laboratory studies
- ▸ Additional data about development of solutions after first trial
- ▸ Specific aspects testable with respective level construction:
  - ▸ Analysis of which starting points are chosen and whether results depend on choice of starting point
  - ▸ Influence of explicitly provided global features (here: regions) on solutions

Level	7	14
No. players	134	104
Min	8531.41	8531.47
Max	20652.05	20873.69
Avg	9365.79	9280.36