

## Exercise 7 – Mensch-Maschine-Interaktion 2

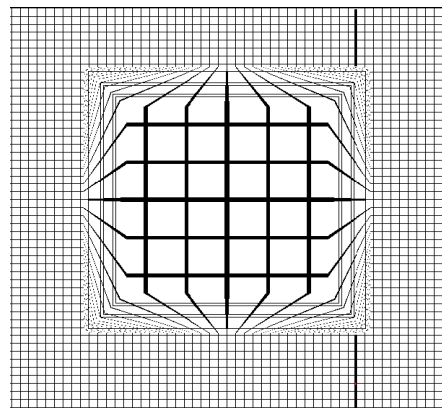
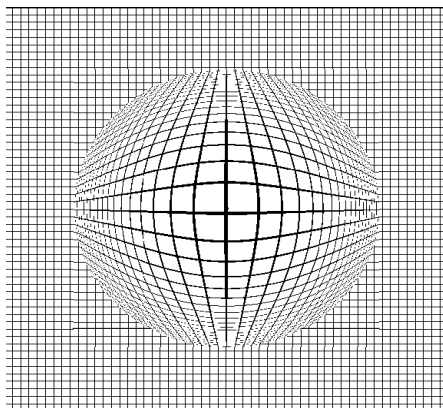
### Fisheye Visualization

(Per-group homework, 2 weeks)

Implement two different fisheye views based on the given prototype `ImageFrame.java`:

- Radial fisheye using the transfer function  $T(x) = (d + 1) \cdot x / (d \cdot x + 1)$ . The distortion factor  $d$  relates to the magnification factor  $m$  by  $d = m - 1$ .
- Rectangular, faceted fisheye.

The pictures below show the expected results for the two different fisheyes with the example grid file `Grid1_4000x3000.GIF`.



#### Hints:

Compile and run the prototype which is available on the MMI2 web page:

[http://www.medien.ifl.lmu.de/lehre/ss07/mmi2/exercise7\\_data.zip](http://www.medien.ifl.lmu.de/lehre/ss07/mmi2/exercise7_data.zip)

Example pictures are included. (You may need to invoke `java` with the `-Xmx256m` switch to avoid out of memory errors.)

To implement the fisheye view, use normalized coordinates. This means that the source and the destination rectangle have coordinates values in the range  $[-1, 1]$ . For the radial fisheye, convert the normalized coordinates into polar coordinates and apply the inverse transfer function to the radial component.

#### Submission:

- Submission is by email to [arnd.vitzthum@ifi.lmu.de](mailto:arnd.vitzthum@ifi.lmu.de)
- Please use a ZIP attachment named `exercise7groupN.zip` ( $N$  is the number of your group). The archive must include both source code and the corresponding `.jar` file. Your solution must compile. Try to keep the attachment size below 4 MB.
- Each group must hand in one solution. Please state if anyone has left your group.
- Deadline for submission: **Tuesday, July 17, 9 a.m.**