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Real-Time Simulation of Camera Errors and Their Effect on Some Basic Robotic Vision Algorithms

By:

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Modern robots, especially service robots, do no longer operate in well defined environments like factories or highrack warehouses. They rather work under every day conditions, where they need to build maps, navigate or identify objects. For these tasks optical cameras play an important role. The video streams which the cameras provide are examined with computer vision algorithms and the results of these vision algorithms steer the behavior of the robot. Technical influences such as camera errors result in a quality loss on the images and therefore lead to a different robot behavior. For this reason it can be valuable to take camera errors into account during the simulation of a robotic system. We analysed the performance of some basic algorithms for robotic vision when adding modifications to images due to camera errors. Camera errors we examined are vignetting, chromatic aberration and thermal CCD noise.

Jessica Millberg received her bachelor's and master's degree from the Bonn-Rhein-Sieg University of Applied Sciences in Sankt Augustin (Germany)
where she currently works as a research associate. Her research interests include computer vision, augmented reality and interaction techniques for virtual environments.

Monday, June 3 @ 3:30pm
Gillin Hall (540 Windsor St.) , GC127