

Master thesis

In-process deformation measurements in metalworking manufacturing processes

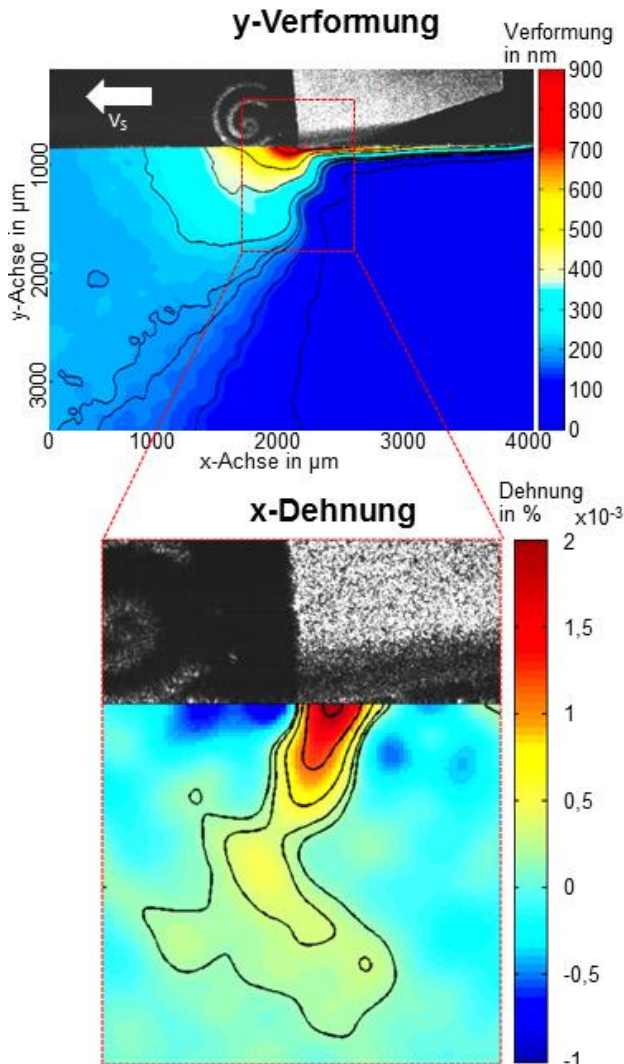


Figure 1: Deformation and strain measurements in a milling process.

Deformation measurements based on speckle photography have been used for many years in special applications of production technology. In particular, the development of high-speed cameras with 4k resolution and the availability of ultra-short pulse lasers offer a large number of new applications. A current research project investigates speckle photography using these new techniques.

The explicit tasks of this master thesis should be to adapt the existing experimental setups to different production processes and to optimize the existing *Matlab* algorithms for the evaluation of the measurement data. For this purpose practical measurements on the production machines are planned. On the other hand different image analysis methods have to be implemented in the course of the evaluation.

Your profile

- Student of production engineering, systems engineering or industrial engineering
- Interest in handling with lasers and opto-electronic components
- First programming experience with Matlab
- Ability to autodidactic familiarization into new topic areas
- Good technical understanding
- Independent working and team skill