Intelligent Vision Systems
Computer Vision Techniques in 2D and 3D

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In the first part, we introduce methods, applications and results in the field of 3D object reconstruction from point clouds. Especially, we focus on the employment of dimensional, topological and geometrical constraints to foster efficient sampling of very large hypotheses spaces. In the second part, we present methods of light separation combined with deep learning in the field of 2D visual surface analysis. For both parts, we will show application results in the field of high throughput phenotyping done in cooperation with the Julius Kühn-Institut (JKI) for Grapevine Breeding. Both parts are funded by the German Research Council (DFG), the second part is also done in cooperation with Matthias Hullin from the Inistitue of Computer Science II.