



Vladislav Golyanik

# Robust Methods for Dense Monocular Non-Rigid 3D Reconstruction and Alignment of Point Clouds

- **Computer vision primer: state-of-the-art methods**

Vladislav Golyanik proposes several new methods for dense non-rigid structure from motion (NRSfM) as well as alignment of point clouds. The introduced methods improve the state of the art in various aspects, i.e. in the ability to handle inaccurate point tracks and 3D data with contaminations. NRSfM with shape priors obtained on-the-fly from several unoccluded frames of the sequence and the new gravitational class of methods for point set alignment represent the primary contributions of this book. About the Author: Vladislav Golyanik is currently a postdoctoral researcher at the Max Planck Institute for Informatics in Saarbrücken, Germany. The current focus of his research lies on 3D reconstruction and analysis of general deformable scenes, 3D reconstruction of human body and matching problems on point sets and graphs. He is interested in machine learning (both supervised and unsupervised), physics-based methods as well as new hardware and sensors for computer vision and graphics (e.g., quantum computers and event cameras).

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