Deep Learning for Geometric Computing

CVPR 2022 Workshop and Challenge

News

- Our workshop will be **hybrid** and take place on June 20th. Stay tuned for information on online and in-person attendance.

Important dates

- ~~**Challenge submission deadline (training phase): March 20th, 2022**~~
- ~~**Challenge submission deadline (validation phase): March 27th, 2022**~~
- ~~**Paper submission deadline**: **March 27th, 2022**~~
- ~~Acceptance notification: April 10th, 2022~~
- ~~Camera-ready paper due: April 18th, 2022~~
- Workshop (full day): June 20th, 2022

Introduction

Computer vision approaches have made tremendous efforts toward understanding shape from

provide compact and intuitive abstractions for modeling, synthesis, compression, matching, and analysis. Extracting such representations is significantly different from segmentation and recognition tasks, as they contain both local and global information about the shape.

To advance the state of the art in topological and geometric shape analysis using deep learning, we aim to gather researchers from computer vision, computational geometry, computer graphics, and machine learning in this third edition of "Deep Learning for Geometric Computing" workshop at CVPR 2022. The workshop encapsulates competitions with prizes, proceedings, keynotes, paper presentations, and a fair and diverse environment for brainstorming about future research collaborations.

Topics covered

- Boundary extraction from 2D/3D shapes
- Geometric deep learning on 3D and higher dimensions
- Generative methods for parametric representations
- Novel shape descriptors and embeddings for geometric deep learning
- Deep learning on non-Euclidean geometries
- Transformation invariant shape abstractions
- Shape abstraction in different domains
- Synthetic data generation for data augmentation in geometric deep learning
- Comparison of shape representations for efficient deep learning
- Novel kernels and architectures specifically for 3D generative models
- Eigen-spectra analysis and graph-based approaches for 3D data
- Applications of geometric deep learning in different domains
- Learning-based estimation of shape differential quantities
- Detection of geometric feature lines from 3D data, including 3D point clouds and depth images
- Geometric shape segmentation, including patch decomposition and sharp lines detection