Publications:

Cache-mesh, a Dynamics Data Structure for Performance Optimization
Publication: Research - peer-review › Journal article – Annual report year: 2017

Multi-phase Volume Segmentation with Tetrahedral Mesh
Publication: Research - peer-review › Paper – Annual report year: 2017

Scene reassembly after multimodal digitization and pipeline evaluation using photorealistic rendering
Publication: Research - peer-review › Journal article – Annual report year: 2017

Cuttable Ruled Surface Strips for Milling
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Designing for hot-blade cutting: Geometric Approaches for High-Speed Manufacturing of Doubly-Curved Architectural Surfaces
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Hot Blade Cuttings for the Building Industries
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Improving topology optimization intuition through games
Publication: Research - peer-review › Journal article – Annual report year: 2016

Interactive Appearance Prediction for Cloudy Beverages
Publication: Research - peer-review › Article in proceedings – Annual report year: 2016

Interactive directional subsurface scattering and transport of emergent light
Publication: Research - peer-review › Journal article – Annual report year: 2016

Interactive Topology Optimization
Publication: Research › Ph.D. thesis – Annual report year: 2016

Rationalization with ruled surfaces in architecture
Publication: Research › Ph.D. thesis – Annual report year: 2016
Robotic Hot-Blade Cutting: An Industrial Approach to Cost-Effective Production of Double Curved Concrete Structures
Publication: Research - peer-review › Book chapter – Annual report year: 2016

Tangible 3D modeling of coherent and themed structures
Publication: Research - peer-review › Journal article – Annual report year: 2016

3D interactive topology optimization on hand-held devices
Publication: Research - peer-review › Journal article – Annual report year: 2014

Combined Shape and Topology Optimization
Publication: Research › Ph.D. thesis – Annual report year: 2015

Combined shape and topology optimization of 3D structures
Publication: Research - peer-review › Conference article – Annual report year: 2014

Interactive Global Illumination Effects Using Deterministically Directed Layered Depth Maps
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Advising students in technical projects - recognizing problem scenarios
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

Automatic balancing of 3D models
Publication: Research - peer-review › Journal article – Annual report year: 2014

Interactive Shape Modeling using a Skeleton-Mesh Co-Representation
Publication: Research - peer-review › Journal article – Annual report year: 2014

Multiphase Image Segmentation Using the Deformable Simplicial Complex Method
Publication: Research - peer-review › Article in proceedings – Annual report year: 2014

On the Benefits of Stereo Graphics in Virtual Obstacle Avoidance Tasks
Publication: Research - peer-review › Article in proceedings – Annual report year: 2015

Topology optimization using an explicit interface representation
Publication: Research - peer-review › Journal article – Annual report year: 2013

Improving Topology Optimization using Games
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013

Multiphase Flow of Immiscible Fluids on Unstructured Moving Meshes
Publication: Research - peer-review › Journal article – Annual report year: 2013

Pond of Illusion: Interacting through Mixed Reality
Publication: Research - peer-review › Conference abstract in proceedings – Annual report year: 2013

PorkCAD: Case study of the design of a pork product prototyper
Publication: Research - peer-review › Article in proceedings – Annual report year: 2013

Topology Optimization using an Explicit Interface Representation
Publication: Research - peer-review › Conference abstract for conference – Annual report year: 2013
Automatic Quality Measurement and Parameter Selection for Example-based Texture Synthesis
Publication: Research › Report – Annual report year: 2012

Converting skeletal structures to quad dominant meshes
Publication: Research - peer-review › Conference article – Annual report year: 2012

Generic Graph Grammar: A Simple Grammar for Generic Procedural Modelling
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Multiphase flow of immiscible fluids on unstructured moving meshes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Realistic Virtual Cuts
Publication: Research › Ph.D. thesis – Annual report year: 2012

Real-Time Rendering of Teeth with No Preprocessing
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Registration-based Interpolation Real-Time Volume visualization
Publication: Research - peer-review › Article in proceedings – Annual report year: 2012

Topology Adaptive Interface Tracking Using the Deformable Simplicial Complex
Publication: Research - peer-review › Journal article – Annual report year: 2012

3D Shape Modeling Using High Level Descriptors
Publication: Research › Ph.D. thesis – Annual report year: 2012

Anisotropic 3D texture synthesis with application to volume rendering
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Cut Locus Construction using Deformable Simplicial Complexes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Descriptor Based Analysis of Digital 3D Shapes
Publication: Research › Ph.D. thesis – Annual report year: 2012

Descriptor Based Classification of Shapes in Terms of Style and Function
Publication: Research › Report – Annual report year: 2011

Example based style classification
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011

Grammar for general purpose procedural modeling
Publication: Research › Poster – Annual report year: 2011

Mathematical foundation of the optimization-based fluid animation method
Publication: Research - peer-review › Article in proceedings – Annual report year: 2011
Real time ray tracing of skeletal implicit surfaces
Publication: Research - peer-review › Poster – Annual report year: 2011

Deformable Simplicial Complexes
Publication: Research › Ph.D. thesis – Annual report year: 2010

Generating quality tetrahedral meshes from binary volumes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Lecture Notes on Real-Time Graphics
Publication: Education › Compendium/lecture notes – Annual report year: 2010

Markov Random Fields on Triangle Meshes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Markov Random Field Surface Reconstruction
Publication: Research - peer-review › Journal article – Annual report year: 2010

Optimization-based Fluid Simulation on Unstructured Meshes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Surfel Based Geometry Reconstruction
Publication: Research - peer-review › Article in proceedings – Annual report year: 2010

Camera Reectioning from a Box
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Height and Tilt Geometric Texture
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Regularisation of 3D Signed Distance Fields
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Shape Analysis Using the Auto Diffusion Function
Publication: Research - peer-review › Conference article – Annual report year: 2009

Tetrahedral Mesh Improvement Using Multi-face Retriangulation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2009

Markov Random Fields on 3D Polygonal Meshes
Publication: Research › Conference abstract in proceedings – Annual report year: 2008

Shader-Based Wireframe Drawing
Publication: Research › Journal article – Annual report year: 2008

Two Methods for Antialiased Wireframe Drawing with Hidden Line Removal
Publication: Research - peer-review › Article in proceedings – Annual report year: 2008

Boneless Pose Editing and Animation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007
Variational Volumetric Surface Reconstruction from Points
Publication: Research - peer-review › Article in proceedings – Annual report year: 2007

3D Distance Fields: A Survey of Techniques and Applications
Publication: Research - peer-review › Journal article – Annual report year: 2006

Optimizing 3D Triangulations to Recapture Sharp Edges
Publication: Research - peer-review › Report – Annual report year: 2006

Single-pass Wireframe Rendering
Publication: Research › Poster – Annual report year: 2006

From Points to Smooth Surfaces
Publication: Research › Article in proceedings – Annual report year: 2005

Hardware-accelerated Point Generation and Rendering of Point-based Impostors
Publication: Research - peer-review › Journal article – Annual report year: 2005

Robust Generation of Signed Distance Fields from Triangle Meshes
Publication: Research - peer-review › Article in proceedings – Annual report year: 2005

Signed distance computation using the angle weighted pseudonormal
Publication: Research - peer-review › Journal article – Annual report year: 2005

Signed Distance Computation using the Angle Weighted Pseudo-normal
Publication: Research - peer-review › Journal article – Annual report year: 2005

Hardware Accelerated Point Rendering of Isosurfaces
Publication: Research - peer-review › Conference article – Annual report year: 2003

PDE Based Surface Estimation for Structure from Motion.
Publication: Research - peer-review › Article in proceedings – Annual report year: 2003

Pseudo–Normals for Signed Distance Computation
Publication: Research - peer-review › Article in proceedings – Annual report year: 2003

Computing discrete signed distance fields from triangle meshes
Publication: Research - peer-review › Report – Annual report year: 2002

Generating Signed Distance Fields From Triangle Meshes
Publication: Research - peer-review › Report – Annual report year: 2002

Interactive Modelling of Shapes Using the Level-Set Method
Publication: Research - peer-review › Journal article – Annual report year: 2002

Manipulation of volumetric solids with applications to sculpting
Publication: Research › Ph.D. thesis – Annual report year: 2002

Using Cellular Phones to Interact with Virtual Environments
Publication: Research › Poster – Annual report year: 2002
Volume Sculpting Using the Level-Set Method
Publication: Research - peer-review › Article in proceedings – Annual report year: 2002

A Technique for Volumetric CSG Based on Morphology
Publication: Research - peer-review › Article in proceedings – Annual report year: 2001

On the implementation of fast marching methods for 3D lattices
Publication: Research › Report – Annual report year: 2001

Volume Sculpting: Intuitive, Interactive 3D Shape Modelling
Publication: Research › Poster – Annual report year: 2001

A Morphological Approach to the Voxelization of Solids
Publication: Research - peer-review › Article in proceedings – Annual report year: 2000

Octree-based Volume Sculpting
Publication: Research - peer-review › Article in proceedings – Annual report year: 1998

Projects:

Smart Manufacturing Frameworks
Project: PhD

The Statistics of Estimated Surfaces
Project: PhD

A Traceable 3D Scanning and Reconstruction Pipeline
Project: PhD

Surface Design and Rationalization for Robotic Hotwire and Hotblade Cutting Techniques
Project: PhD

Digital Factory
Project

Segmentation and Reconstruction of Multi-Phase Structures using the Derformable Simplicial Complex Method
Project: PhD

Hybrid Techniques for Interactive Photorealistic Rendering
Project: PhD

Rationalization with ruled surfaces in architecture
Project: PhD

Stastistical Priors in Variational Reconstruction Methods
Project: PhD

Interactive Topology Optimization
Project: PhD
Individualized directional microphone optimization in hearing aids based on reconstructing 3D geometry of the head and ear from 2D photos
Project: PhD

Geometrical Design Representations for Topology Optimization
Project: PhD

Anatomical surface reconstruction and optimization
Project: PhD

Surface Reconstruction of Coherent Deformable 3D Scans with Topological Recovery
Project: PhD

Towards the Interactive ESS-Food Catalogue
Project: PhD

Operational Shape Descriptors
Project: PhD

3D Shape Modelling using High Level Descriptors
Project: PhD

Automatic Quantitative Image Analysis of 3D Micrographs
Project: PhD

Lighting Design and Real-time Global Illumination
Project: PhD

Virtual reality - Volume sculpting
Project: PhD

Computer Graphics and CAD
Project

Activities:

Symposium on Geometry Processing 2017
Activity: Attending an event › Participating in or organising a conference

Computer Graphics Forum (Journal)
Activity: Research › Journal editor