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DESCRIPTION

Graphical Models is recognized internationally as a highly rated, top tier journal and is focused on the creation, geometric processing, animation, and visualization of **graphical models** and on their applications in engineering, science, culture, and entertainment. *GMOD* provides its readers with thoroughly reviewed and carefully selected papers that disseminate exciting innovations, that teach rigorous theoretical foundations, that propose robust and efficient solutions, or that describe ambitious systems or applications in a variety of topics.

We invite papers in five categories: research (contributions of novel theoretical or practical approaches or solutions), survey (opinionated views of the state-of-the-art and challenges in a specific topic), system (the architecture and implementation details of an innovative architecture for a complete system that supports model/animation design, acquisition, analysis, visualization), application (description of a novel application of know techniques and evaluation of its impact), or lecture (an elegant and inspiring perspective on previously published results that clarifies them and teaches them in a new way).

GMOD offers its authors an accelerated review, feedback from experts in the field, immediate online publication of accepted papers, no restriction on color and length (when justified by the content) in the online version, and a broad promotion of published papers. A prestigious group of **editors** selected from among the premier international researchers in their fields oversees the review process.

Because timely publication of research results is important for the careers of our authors and for the vitality of the field, *GMOD* is putting in place its R3 (Rapid Response Review) system, which strives to provide authors with a preliminary decision within an average of one month after **submission**.

The following are examples of topics typically covered in *GMOD*:

Shape Processing: Analysis of local properties. Averaging and relative convex hulls. Correspondence, registration, matching and retrieval. Detection of ridges, features, patterns, and symmetries. Measures of volume, compactness, or convexity. Morphological operations (offsetting, rounding, tightening). Segmentation. Similarity measures, comparison, variability statistics.

Points: Analysis. Interpolation. Multi-resolution. Rendering. Segmentation. Separation.

Curves: Parametric. Implicit. Fitting. Smoothing, Subdivision. Constant length. Extraction. Segmentation. Matching. Comparison. Averaging. Curves on surfaces. Rounding, Offsetting, Regularity.

Skeletons: Animation and Skinning. Medial axis or curve skeleton (construction, approximation, properties)

Meshes: Compact data structures. Feature extraction and replication. Feature exaggeration. Levels of Detail. Simplification. Shape measures. Parameterization. Re-sampling. Smoothing. Subdivision. Volume/area preservation. Feature sharpening.

Surfaces: Implicit. Parametric. Curvature. Hole filling. Geodesics. Intersection. Interpolating. Reconstruction. Sampling.

Solids: Boolean operations. Boundary representations. CSG. BSP. Non-manifold models. Inhomogeneous models. Non-manifold models and complexes. Offsets. Reconstruction from drawings, images, videos. Repair. Rounding and smoothing. Sweeps.

Volumes/Images/Video: Matching. Searching. Filtering. Compression. Segmentation. Stitching. Merging. In-painting. Isosurfaces. Rendering.

Design: Constraint-based. Feature-based. Variational. Direct manipulation. Haptics. Multimodal interfaces. Multiuser interfaces. Pen-based Procedural models and patterns.

Motion: Rigid, affine, steady. Analysis. Capture. Pattern extraction. Synthesis. Constrained. Blending.

Morphing: Curves. Graphs. Images. Volumes. Meshes. Solids. Surfaces. In-betweening.

Deformation: Capture/acquisition. Direct manipulation. Free-form, Image/volume warping. Interpolating meshes. Preservation of local details.

Animation: Design. Evaluation. Behavioral. Retargeting. Data driven. Humans. Animals. Face. Hand. Gate. Swimming. Constrained. Preserving volume, area, or length. Optimization.

Simulation: Collision and friction. Articulated and flexible shapes. Physically based behavior. Cloth. Crowds and flocks. Deposition, erosion, and biological growth. Fluid. Hair. Viscoelastic deformations. Sound.

Rendering: Illustrative (non-photorealistic). Image-based. Artistic. Global Illumination. Occlusion. Perception. Perspective. Acceleration of radiosity./raytracing. Reflectance and Shading Models. Relighting. Silhouettes. Shadows. Texture Mapping. Visibility.

Hardware Acceleration: Collision and visibility queries. Frame buffer algorithms. GPUs and parallelization. Model Acquisition and Scanning. Ray Casting/Tracing Hardware.

Model Dissemination: Shared models. Collaborative access. Geometry compression. Progressive/selective refinements. Streaming scenes and animations. Watermarking.

Tool: Artificial intelligence. Computational geometry. Data structures. Differential geometry. Genetic algorithms. Linear algebra . Machine learning. Mathematical morphology. Numerical accuracy. Numerical analysis. Optimization. Signal Processing. Topology. Wavelets.

Application: Manufacturing. Robotics. Architecture and urban simulation. Medicine. Biology. Natural phenomena. Cinema. Videogames. Education. Cultural Heritage. Typography. Scientific Computing.

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Academic and industrial researchers in computer graphics, computer vision and image processing, and their application areas

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Mesh Optimization, Shape Deformation, Non-rigid Registration

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Tao Ju, Washington University in St. Louis, St. Louis, Missouri, USA
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 B-rep. Reverse Engineering. Registration. Curve/surface smoothing. Sketching. Machining. Mesh denoising, comparison, morphing. Symmetry/congruence. Bas reliefs. NPR. Image/video resizing, vectorization, up-sampling. Shape descriptors. Non-medical biological geometry.

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 Data structures. Nearest neighbor. Clustering, Web interface for medical diagnosis. Image similarity.

Pedro Sander, Hong Kong University of Science and Technology, Kowloon, Hong Kong
 Geometry Processing. LOD. Silhouettes. Super-sampling. Mesh traversal. Realtime rendering. GPU. NPR of videos and animations.

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CAGD, subdivision surfaces, barycentric coordinates, surface reconstruction, implicit modeling, surface deformation.

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INTRODUCTION

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Graphical Models is recognized internationally as a highly rated, top tier journal and is focused on the creation, geometric processing, animation, and visualization of GRAPHICAL MODELS and on their applications in engineering, science, culture, and entertainment. GMOD provides its readers with thoroughly reviewed and carefully selected papers that disseminate exciting innovations, that teach rigorous theoretical foundations, that propose robust and efficient solutions, or that describe ambitious systems or applications in a variety of topics.

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