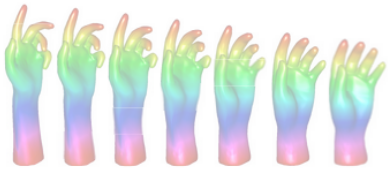
2nd International Workshop on Diff-CVML 2016: Differential Geometry in Computer Vision and Machine Learning



In conjunction with the IEEE Computer Vision and Pattern Recognition conference (CVPR 2016) Las Vegas, NV, USA, July 1, 2016

http://www-rech.telecom-lille.fr/diff-cv2016/

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Riemannian geometry is gaining popularity in the vision and pattern recognition communities as an important tool for analyzing structures and their variabilities in high-dimensional observation spaces. In particular, Riemannian tools have successfully been applied to several vision problems such as crowd tracking, face recognition, activity recognition, object detection, biomedical diagnosis, and structure-from-motion. In addition to providing nice mathematical formulations, Riemannian approaches exploit geometries of underlying manifolds and lead to faster, more stable algorithms than their Euclidean counterparts. Specific examples of manifolds frequently encountered in vision problems include shape spaces, rigid motions, set of subspaces, covariance matrices, probability distributions, and image deformations. More recently, there have been developments in adapting machine learning algorithms, especially kernel-based approaches, to nonlinear domains using Riemannian geometry. The topics of interest include, but are not limited to:

- Shape Representations: Silhouettes, Surfaces, Skeletons, Humans, etc.
- Information Geometry: Fisher-Rao and elastic metrics, Gromov-Wasserstein family, Earth-Mover's distance, etc.
- Dynamical Systems: Trajectories on manifolds, Rate-invariance, Identification and classification of systems.
- Domain Transfer: Ideas and applications.
- Image/Volume/Trajectory: Spatial and temporal registration & segmentation.
- Manifold-Valued Features: Histograms, Covariance, Symmetric positive-definite matrices, Mixture models.
- Big Data: Dimension reduction using geometric tools.
- Bayesian Inferences: Nonlinear domains, Computational solutions using differential geometry, Variational approaches.
- Machine Learning Approaches on Nonlinear Feature Spaces: Kernel methods, Boosting, SVM-type classification, Detection and tracking algorithms.
- Functional Data Analysis: Hilbert manifolds, Visualization.
- Applications: Medical analysis, Biometrics, Biology, Environmetrics, Graphics, Activity recognition, Bioinformatics, Pattern recognition, etc.
- Geometry of articulated bodies: Applications to robotics, biomechanics, and motor control.
- Computational topology and applications.

Original papers related to the topics of interest listed above can be submitted through the workshop webpage. Papers covering theory and/or application areas of computer vision are invited for submission. All papers will be reviewed under the double blind review process. Submitted papers should follow the same formatting style as a CVPR conference paper.

IMPORTANT DATES

- March 25th, 2016	Deadline for workshop paper submission
- April 15th, 2016	Paper reviews due
- April 22th, 2016	Decisions released to authors
- May 2nd, 2016	Deadline for submitting camera-ready papers

FOR MORE INFORMATION: http://www-rech.telecom-lille.fr/diff-cv2016/