

3rd International Workshop on
**Diff-CVML 2017: DIFFerential Geometry in
Computer Vision and Machine Learning**

CVPR2017



In conjunction with the IEEE Conference on Computer Vision and Pattern Recognition CVPR 2017 (<http://cvpr2017.thecvf.com>) to be held in Honolulu, Hawaii, USA, July 21, 2017 (the date may be subject to change per CVPR final schedule)
Workshop webpage : <http://www-rech.telecom-lille.fr/diffcvml2017/>

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Riemannian geometric computing has received a lot of recent interest in the computer vision community. In particular, Riemannian geometric principles can be applied to a variety of difficult computer vision problems including face recognition, activity recognition, object detection, biomedical image analysis, and structure-from-motion to name a few. Besides their nice mathematical formulation, Riemannian computations based on the geometry of underlying manifolds are often faster and more stable than their classical counterparts. Over the past few years, the popularity of Riemannian algorithms has increased several-fold. Some of the mathematical entities that benefit from a geometric analysis include rotation matrices, medial representations, subspace comparisons, symmetric positive-definite matrices, function spaces, and many more. The topics of interest for this workshop 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, Covariances, 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

- April 10th, 2017 Deadline for workshop paper submission
- May 8th, 2017 Paper reviews due
- May 13th, 2017 Decisions released to authors
- May 19th, 2017 Deadline for submitting camera-ready papers

FOR MORE INFORMATION: <http://www-rech.telecom-lille.fr/diffcvml2017/>