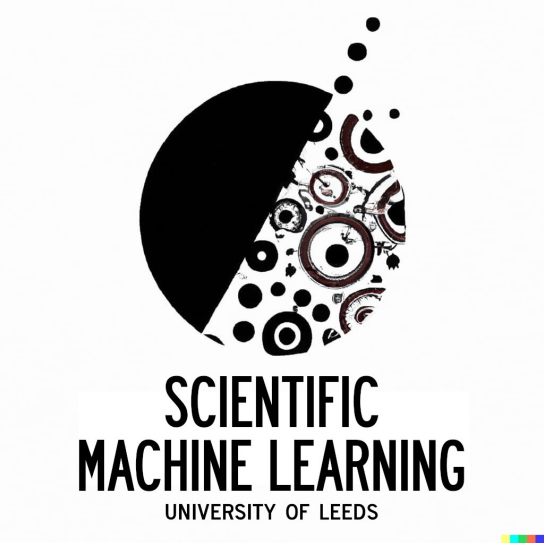

Hi <<Don't put your details here!>>,

On Friday we'll be hosting Tom Baldwin-McDonald from Manchester, where they will be delivering a talk on one-shot point cloud simplification using gaussian processes.

Note that this is the last talk before we take a break for the summer. Come along for refreshments and interesting ML discussion!

Please see below for the full details and hope to see you there! Teams link if joining remotely.

Any questions, please feel free to reply to this email.

We look forward to seeing you on Friday!

Feature-Preserving Point Cloud Simplification with Gaussian Processes

Tom Baldwin-McDonald, Manchester

Friday 14th July - 2-3pm (Worsley Room 11.87 / hybrid)
Teams link if joining remotely.

Abstract:

The processing, storage and transmission of large-scale point clouds is an ongoing challenge in the computer vision community which hinders progress in the application of 3D models to real-world settings, such as autonomous driving, virtual reality and remote sensing. We propose a novel, one-shot point cloud simplification method which preserves both the salient structural features and the overall shape of a point cloud without any prior surface reconstruction step. Our method employs Gaussian processes with kernels defined on Riemannian manifolds, allowing us to model the surface variation function across any given point cloud. A simplified version of the original cloud is obtained by sequentially selecting points using a greedy sparsification scheme. The selection criterion used for this scheme ensures that the simplified cloud best represents the surface variation of the original point cloud. We evaluate our method on several benchmark datasets, compare it to a range of existing methods and show that our method is competitive both in terms of empirical performance and computational efficiency.

https://sciml-leeds.github.io