

# Free-form flows for physics-informed generative modeling

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## **Abstract**

The talk first introduces a useful categorization of the (sometimes confusing) “generative model zoo” in terms of different change-of-variables formulas. It then shows how normalizing flows, a major architecture for generative neural networks, can be used for simulation-based Bayesian inference in the sciences. Finally, it proposes free-form flows to simplify the incorporation of physical prior knowledge, e.g. rotation and translation invariance or the restriction of the distribution to a manifold, into generative models.

**Keywords:** Normalizing flows; physical-informed neural networks; simulation-based inference.