

## CRUNCH Seminars at Brown, Division of Applied Mathematics

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### Potential Flow Generator with $L_2$ Optimal Transport Regularity for Generative Models

Gan Liu

We propose potential flow generator with  $L_2$  optimal transport regularity for generative models. With a up to slight augmentation to the original generator loss, our potential flow generator could be easily integrated into a wide range of generative models including different versions of GANs and flow-based models. We show the correctness and robustness of potential flow generator in several 2D problems, and illustrated the characteristic of "proximity" due to the  $L_2$  optimal transport regularity. Consequently we show the effectiveness of potential flow generator in image translation tasks with unpaired training data from the MNIST dataset and the CelebA dataset.