

Simulation of Electron Signals using Generative Adversarial Networks

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Introduction

- ▶ Calorimetry with Generative Adversarial Networks: CaloGAN
- ▶ Particle showers in multi-layer electromagnetic calorimeters

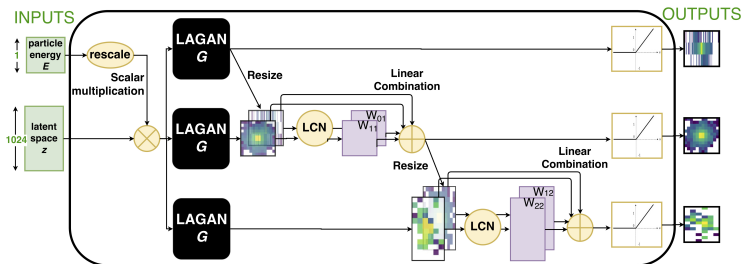


Figure: The Generator contains three parallel streams with an in-painting mechanism to handle the sequential nature of these shower images.

Issues and Milestones

- ▶ Issues

- ▶ Adapt CMS images
- ▶ Learning curves of CaloGAN
- ▶ What is the in-painting mechanism about?

- ▶ Milestones

- ▶ CLEI 2018 - XLIV Conferência Latino-americana de Informática
- ▶ Submission deadline: **April 8, 2018**

Results: electron energy 10 GeV

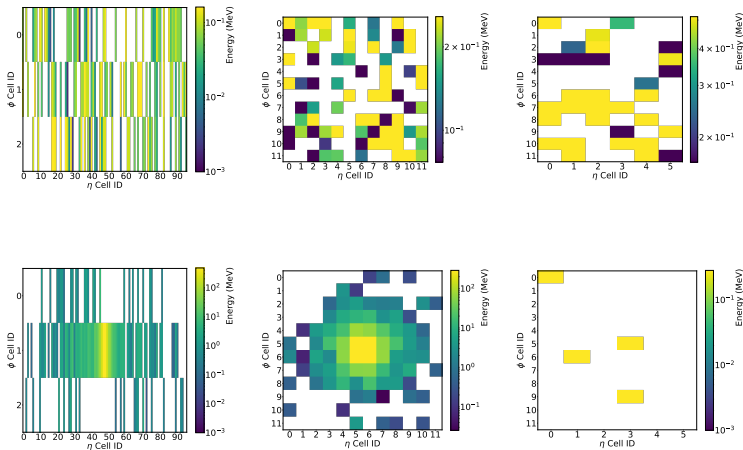


Figure: Background (top) and Signal (bottom)

Results: electron energy 50 GeV

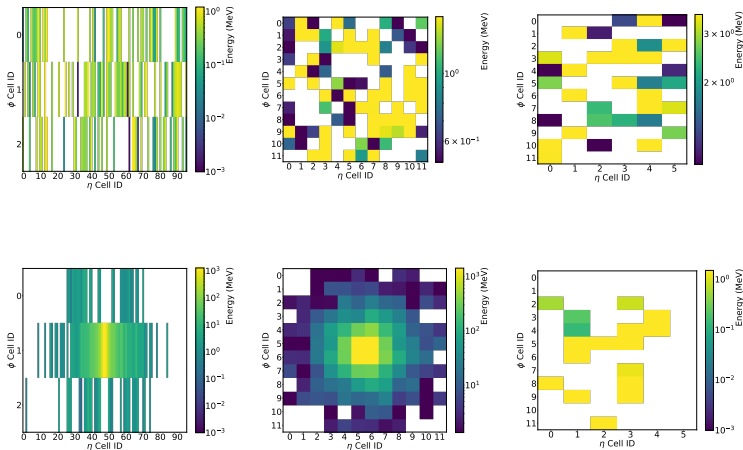


Figure: Background (top) and Signal (bottom)

Results: electron energy 100 GeV

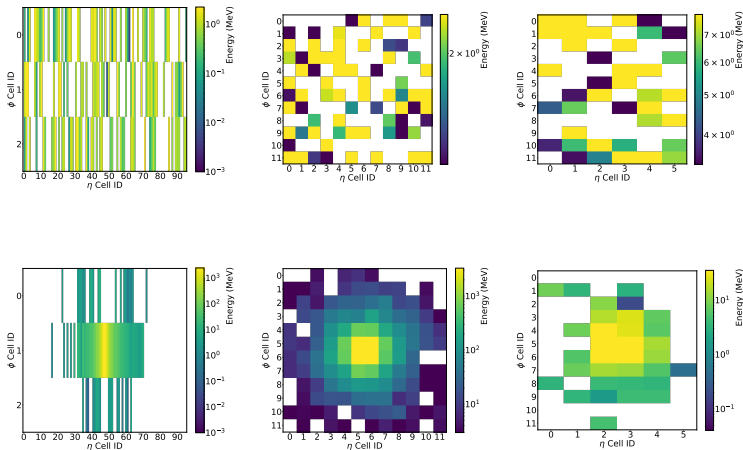


Figure: Background (top) and Signal (bottom)