

# Producing Madgraph5\_aMC@NLO gridpacks and using TensorFlow GPU resources in the CMS HTCondor Global Pool

*Tuesday, July 10, 2018 4:40 PM (20 minutes)*

The CMS experiment has an HTCondor Global Pool, composed of more than 200K CPU cores available for Monte Carlo production and the analysis of data. The submission of user jobs to this pool is handled by either CRAB3, the standard workflow management tool used by CMS users to submit analysis jobs requiring event processing of large amounts of data, or by CMS Connect, a service focused on final stage condor-like analysis jobs and applications that already have a workflow job manager in place. The latest scenario can bring cases in which workflows need further adjustments in order to efficiently work in a globally distributed pool of resources. For instance, the generation of matrix elements for high energy physics processes via Madgraph5\_aMC@NLO and the usage of tools not (yet) fully supported by the CMS software, such as TensorFlow with GPU support, are tasks with particular requirements. A special adaption, either at the pool factory level (advertising GPU resources) or at the execute level (e.g. to handle special parameters that describe certain needs for the remote execute nodes during submission) is needed in order to adequately work in the CMS global pool. This contribution describes the challenges and efforts performed towards adapting such workflows so they can properly profit from the Global Pool via CMS Connect.

**Primary authors:** HURTADO ANAMPA, Kenyi Paolo (University of Notre Dame (US)); FAJARDO HERNANDEZ, Edgar (Univ. of California San Diego (US))

**Co-authors:** KOTOBI, Amjad (University of Malaya (MY)); PEREZ-CALERO YZQUIERDO, Antonio (Centro de Investigaciones Energéticas Medioambientales y Tecnológicas (Spain)); BOCKELMAN, Brian Paul (University of Nebraska Lincoln (US)); MASON, David Alexander (Fermi National Accelerator Lab. (US)); DAVILA FOYO, Diego (Autonomous University of Puebla (MX)); KHAN, Farrukh Aftab (Fermi National Accelerator Lab. (US)); LETTS, James (Univ. of California San Diego (US)); LARSON, Krista (Fermi National Accelerator Lab. (US)); MASCHERONI, Marco (Univ. of California San Diego (US)); IVANOV, Todor Trendafilov (University of Sofia (BG))

**Presenter:** HURTADO ANAMPA, Kenyi Paolo (University of Notre Dame (US))

**Session Classification:** Posters

**Track Classification:** Track 3 –Distributed computing