

Variable description	$2\ell_{ss} + 0\tau_h$	$2\ell_{ss} + 1\tau_h$	$3\ell + 0\tau_h$
<b>Jet variables*</b>			
$j_1(p_T, \eta, \phi)$	—	✓	—
$j_2(p_T, \eta, \phi)$	—	✓	—
Score of DeepJet Discriminator ( $j_{1,2}$ )	—	✓	—
Number of jets in event ( $j_{1,2}$ )	—	✓	—
<b>Lepton variables*</b>			
$l_1(p_T, \eta, \phi)$	✓	✓	✓
$l_1(m_T)$	—	✓	—
$l_2(p_T, \eta, \phi)$	✓	✓	✓
$l_2(m_T)$	—	✓	—
$l_3(p_T, \eta, \phi)$	—	—	✓
$\tau_h(p_T, \eta, \phi)$	—	✓	—
<b>kinematic features</b>			
$p_T^{\text{miss}}$	✓	✓	✓
$\Phi(p_T^{\text{miss}})$	✓	—	✓
<b>High level variables</b>			
$t_{\text{had}}(p_T, \eta, \phi)^\dagger$	✓	—	✓
$t_{\text{had}}(\text{BDT score})^\dagger$	✓	—	✓
Higgs jet tagger <sup>†</sup>	—	✓	—
Jet is from hadronic top flag <sup>†</sup> ( $j_{1,2}$ )	—	✓	—
$(p_T, \eta, \phi)$ of vectorial sum of variables of first five jets ( $\sum_{n=1}^5 j_1(p_T, \eta, \phi)$ )	✓	—	✓
$(p_T, \eta, \phi)$ of vectorial sum of variables of remaining jets ( $\sum_{n>5} j_1(p_T, \eta, \phi)$ )	✓	—	✓
$(p_T, \eta, \phi)$ from the vectorial sum of all jet and fakeable lepton variables ( $\sum_n j_n + \sum_n l_n(p_T, \eta, \phi)$ )	✓	—	✓
Avg. $\Delta R$ distance among all jets	—	✓	—
$m_{t\bar{t}H}$	—	✓	—
<b>Total number of variables</b>	<b>21</b>	<b>29</b>	<b>21</b>

\* Order determined by  $p_T$

† Variables come from the “resolved hadronic top tagger” algorithm described in Ref. [9]