

Postdoctoral position at Brown university

Loukas Gouskos (Brown University)

Job Matching Event: May 14, 2024



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Brown

@ Providence (RI)



7th oldest in the US (1764)



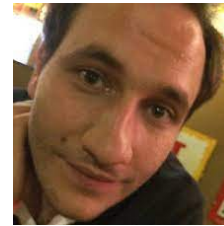
**Charming, walk-able, safe,
top-tier restaurants, close to BOS, NY**

CMS group @Brown

- Since 2004
 - ◆ Currently 7 faculty
- Broad research program
 - ◆ Physics analyses
 - Higgs, Top, QCD, Flavor
 - Direct searches for BSM
 - ◆ Detector & operations
 - CMS Tracker, HCAL
 - ◆ Phase 2 upgrades
 - Outer tracker, HGICAL
 - ◆ AI/DL in HEP
 - jet physics, reconstruction, trigger..
 - ◆ Future Colliders (e.g., FCC)
 - Higgs/top physics, Detector R&D

Faculty

G. Barone



D. Cutts



L. Gouskos



U. Heintz G. Landsberg M. LeBlanc J. Roloff

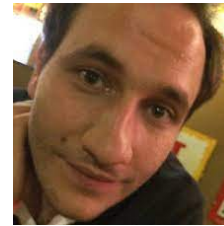


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This position is to join Gouskos' lab [[job details](#)]

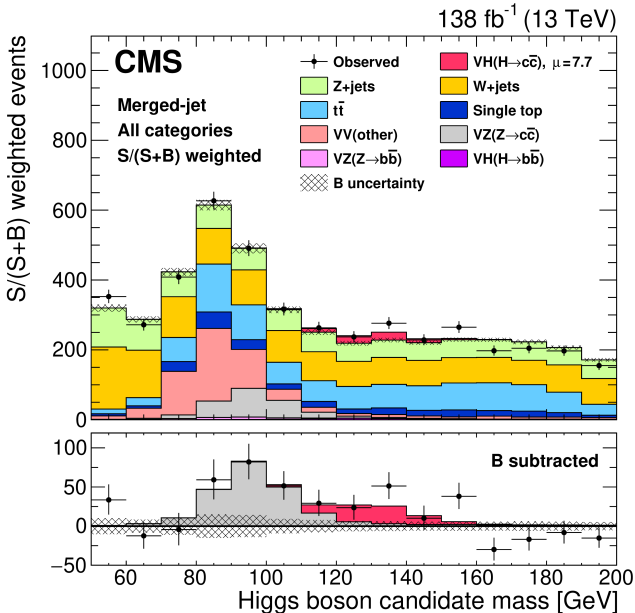
LHC Physics analyses

- Higgs sector

- ◆ 2nd generation quarks: $H \rightarrow cc/ss$
- ◆ Higgs pair production ($4b$, $bb\tau\tau$)

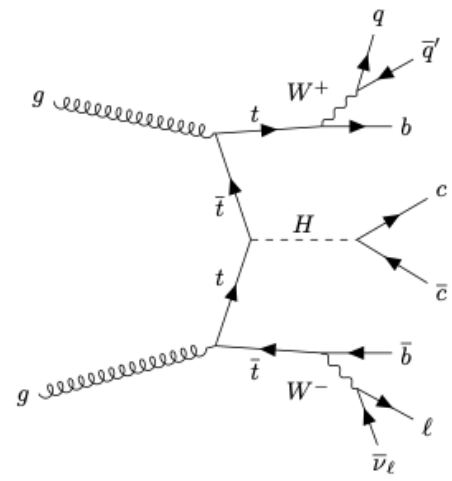
+ Direct BSM searches with jets

VH(cc)



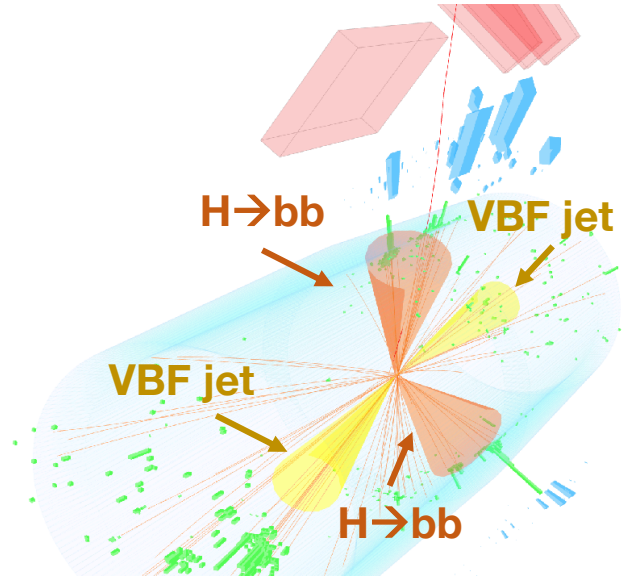
[PRL 131 \(2023\) 061801](#)

ttH(cc)



On-going; comparable sensitivity to VH(cc)

HH→4b



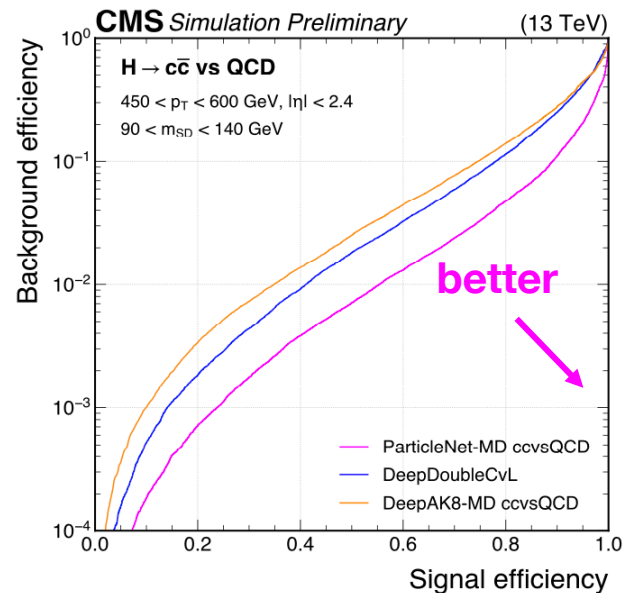
[PRL 131 \(2023\) 041803](#)

[Nature 607 \(2022\) 60](#)

AI/DL in HEP

- Very broad range of topics; e.g.:

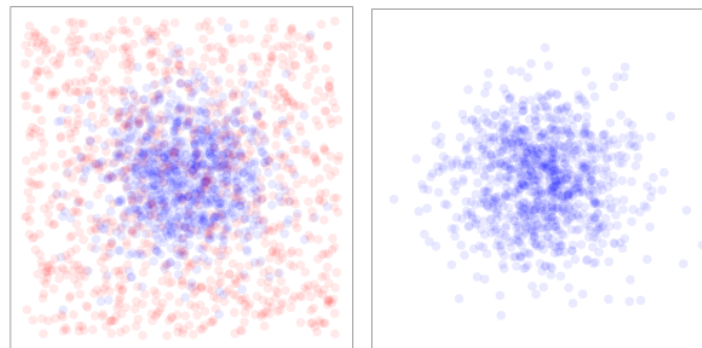
Jet tagging [e.g., ParticleNet]



[PRD 101, 056019 \(2020\)](#)

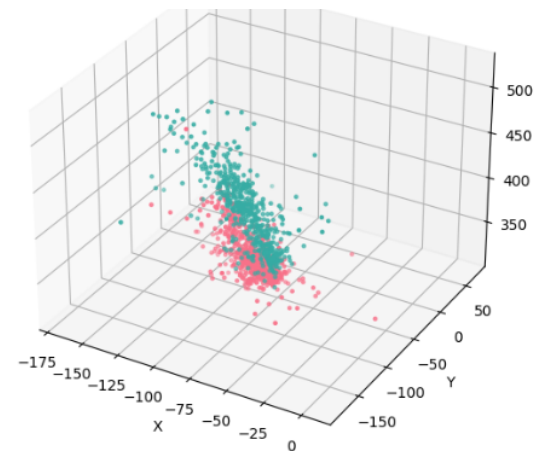
Global event description [e.g, PU mitigation]

via Optimal Transport



[PRD 108, 096003 \(2023\)](#)

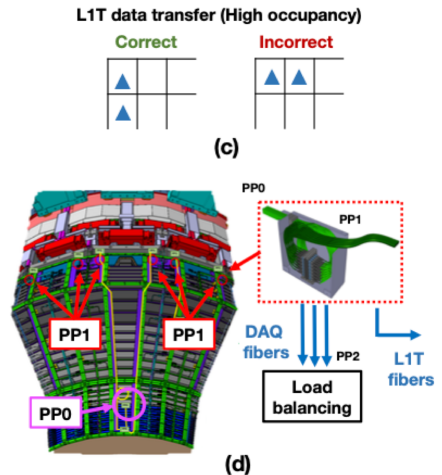
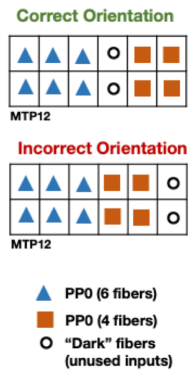
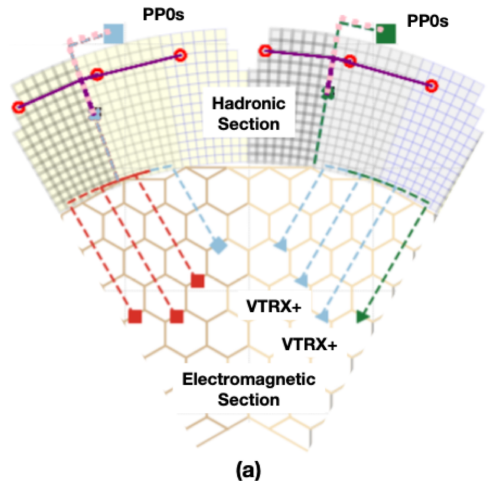
Particle shower reconstruction



CMS High Granularity
(HGCal) detector
[on-going]

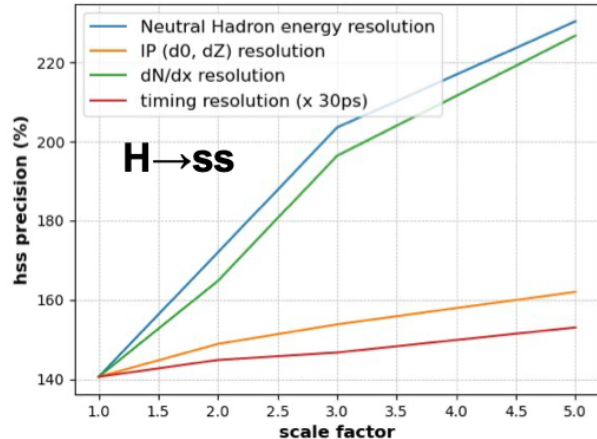
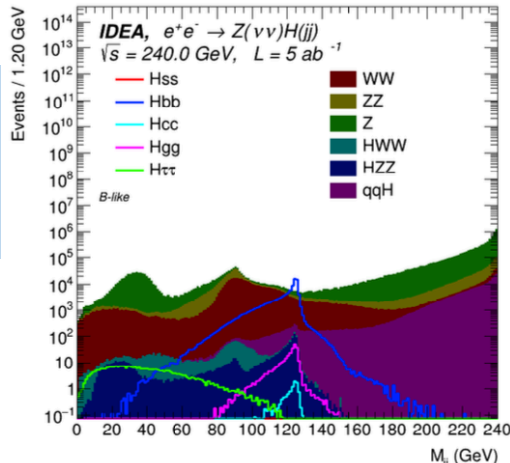
Detectors: HL-LHC & beyond

Near term (HL-LHC):
HGCal Optical fiber
plant mapping



In prep. for EU Particle Physics Strategy planning (2025)

Longer term future (FCC-ee):
jet physics, Higgs couplings,
detector R/D (MAPS)



Group and position details

- Group
 - ◆ 4 BSc, 1 (+1) MSc, 1 (+1) PhDs
- Close collaboration with CERN, FNAL, Florida, KIT, MIT
- Position details [<https://apply.interfolio.com/145469>]
 - ◆ Initial appointment for 1 year; can be extended for up to 5 years
 - ◆ Location: Brown or CERN
 - ◆ Starting date: Flexible; Ideally early Fall 2024
 - ◆ Deadline for full consideration: June 15, 2024
 - position will remain open until filled
 - ◆ For inquires, please contact loukas_gouskos@brown.edu