

# Computing Publications with Major Personal Contributions

Oliver Gutsche

January 1, 2026

A. Apresyan et al., **Detector R&D needs for the next generation  $e^+e^-$  collider**, (2023). <http://arxiv.org/abs/2306.13567>, arXiv:2306.13567 [hep-ex]

M. Atif et al., **Evaluating Portable Parallelization Strategies for Heterogeneous Architectures in High Energy Physics**, (2023). <http://arxiv.org/abs/2306.15869>, arXiv:2306.15869 [hep-ex]

B. Bockelman et al., **IRIS-HEP Strategic Plan for the Next Phase of Software Upgrades for HL-LHC Physics**, (2023). <http://arxiv.org/abs/2302.01317>, arXiv:2302.01317 [hep-ex]

V.D. Elvira et al., **The Future of High Energy Physics Software and Computing**, in: **Snowmass 2021**, 2022, doi:10.2172/1898754, arXiv:2210.05822 [hep-ex]

G. Cerati et al., **Snowmass Computational Frontier: Topical Group Report on Experimental Algorithm Parallelization**, (2022). <http://arxiv.org/abs/2209.07356>, arXiv:2209.07356 [hep-ex]

M. Bhattacharya et al., **Portability: A Necessary Approach for Future Scientific Software**, in: **Snowmass 2021**, 2022. <http://arxiv.org/abs/2203.09945>, arXiv:2203.09945 [physics.comp-ph]

J. Amundson et al., **Response to NITRD, NCO, NSF Request for Information on “Update to the 2016 National Artificial Intelligence Research and Development Strategic Plan”**, (2019), doi:10.2172/1592156, arXiv:1911.05796 [astro-ph.IM]

Z. Ahmed et al., **New Technologies for Discovery**, in: **CPAD Instrumentation Frontier Workshop 2018: New Technologies for Discovery IV**, 2019. <http://arxiv.org/abs/1908.00194>, arXiv:1908.00194 [physics.ins-det]

M. Bellis et al., **HEP Software Foundation Community White Paper Working Group Visualization**, (2018). <http://arxiv.org/abs/1811.10309>, arXiv:1811.10309 [physics.comp-ph]

D. Berzino et al., **HEP Software Foundation Community White Paper Working Group – Data Organization, Management and Access (DOMA)**, (2018). <http://arxiv.org/abs/1812.00761>, arXiv:1812.00761 [physics.comp-ph]

L. Bauerdick et al., **HEP Software Foundation Community White Paper Working Group - Data Analysis and Interpretation**, (2018). <http://arxiv.org/abs/1804.03983>, arXiv:1804.03983 [physics.comp-ph]

S. Habib et al., **ASCR/HEP Exascale Requirements Review Report**, (2016). <http://arxiv.org/abs/1603.09303>, arXiv:1603.09303 [physics.comp-ph]

T. LeCompte et al., **High Energy Physics Forum for Computational Excellence: Working Group Reports (I. Applications Software II. Software Libraries and Tools III. Systems)**, (2015). <http://arxiv.org/abs/1510.08545>, arXiv:1510.08545 [physics.comp-ph]

J. Balcas et al., **Automated Network Services for Exascale Data Movement**, *EPJ Web Conf.* 295 (2024) 01009, doi:10.1051/epjconf/202429501009

O. Gutsche et al., **The U.S. CMS HL-LHC R&D Strategic Plan**, *EPJ Web Conf.* 295 (2024) 04050, doi:10.1051/epjconf/202429504050, arXiv:2312.00772 [hep-ex]

K.H.M. Kwok et al., **Application of performance portability solutions for GPUs and many-core CPUs to track reconstruction kernels**, *EPJ Web Conf.* 295 (2024) 11003, doi:10.1051/epjconf/202429511003, arXiv:2401.14221 [physics.acc-ph]

N. Smith et al., **A Ceph S3 Object Data Store for HEP**, *EPJ Web Conf.* 295 (2024) 01003, doi:10.1051/epjconf/202429501003, arXiv:2311.16321 [physics.data-an]

- N. Smith et al., **Coffea: Columnar Object Framework For Effective Analysis**, *EPJ Web Conf.* 245 (2020) 06012, doi:[10.1051/epjconf/202024506012](https://doi.org/10.1051/epjconf/202024506012), arXiv:[2008.12712 \[cs.DC\]](https://arxiv.org/abs/2008.12712)
- O. Gutsche et al., **Striped Data Analysis Framework**, *EPJ Web Conf.* 245 (2020) 06042, doi:[10.1051/epjconf/202024506042](https://doi.org/10.1051/epjconf/202024506042)
- M. Cremonesi et al., **Using Big Data Technologies for HEP Analysis**, *EPJ Web Conf.* 214 (2019) 06030, doi:[10.1051/epjconf/201921406030](https://doi.org/10.1051/epjconf/201921406030), arXiv:[1901.07143 \[cs.DC\]](https://arxiv.org/abs/1901.07143)
- J. Albrecht et al., **A Roadmap for HEP Software and Computing R&D for the 2020s**, *Comput. Softw. Big Sci.* 3 (2019) 7, doi:[10.1007/s41781-018-0018-8](https://doi.org/10.1007/s41781-018-0018-8), arXiv:[1712.06982 \[physics.comp-ph\]](https://arxiv.org/abs/1712.06982)
- D. Hufnagel et al., **HPC resource integration into CMS Computing via HEPCloud**, *EPJ Web Conf.* 214 (2019) 03031, doi:[10.1051/epjconf/201921403031](https://doi.org/10.1051/epjconf/201921403031)
- D. Lange et al., **CMS Computing Resources: Meeting the Demands of the High-Luminosity LHC Physics Program**, *EPJ Web Conf.* 214 (2019) 03055, doi:[10.1051/epjconf/201921403055](https://doi.org/10.1051/epjconf/201921403055)
- J. Chang et al., **Striped Data Server for Scalable Parallel Data Analysis**, *J. Phys. Conf. Ser.* 1085 (2018) 042035, doi:[10.1088/1742-6596/1085/4/042035](https://doi.org/10.1088/1742-6596/1085/4/042035)
- O. Gutsche et al., **CMS Analysis and Data Reduction with Apache Spark**, *J. Phys. Conf. Ser.* 1085 (2018) 042030, doi:[10.1088/1742-6596/1085/4/042030](https://doi.org/10.1088/1742-6596/1085/4/042030), arXiv:[1711.00375 \[cs.DC\]](https://arxiv.org/abs/1711.00375)
- L. Bauerdick et al., **Experience in using commercial clouds in CMS**, *J. Phys. Conf. Ser.* 898 (2017) 052019, doi:[10.1088/1742-6596/898/5/052019](https://doi.org/10.1088/1742-6596/898/5/052019)
- O. Gutsche, **Dark Matter and Super Symmetry: Exploring and Explaining the Universe with Simulations at the LHC**, in: *Winter Simulation Conference: Simulating Complex Service Systems*, 2017: pp. 4–13, doi:[10.1109/WSC.2016.7822075](https://doi.org/10.1109/WSC.2016.7822075)
- O. Gutsche et al., **Big Data in HEP: A comprehensive use case study**, *J. Phys. Conf. Ser.* 898 (2017) 072012, doi:[10.1088/1742-6596/898/7/072012](https://doi.org/10.1088/1742-6596/898/7/072012), arXiv:[1703.04171 \[cs.DC\]](https://arxiv.org/abs/1703.04171)
- B. Holzman et al., **HEPCloud, a New Paradigm for HEP Facilities: CMS Amazon Web Services Investigation**, *Comput. Softw. Big Sci.* 1 (2017) 1, doi:[10.1007/s41781-017-0001-9](https://doi.org/10.1007/s41781-017-0001-9), arXiv:[1710.00100 \[cs.DC\]](https://arxiv.org/abs/1710.00100)
- A. Apyan et al., **Pooling the resources of the CMS Tier-1 sites**, *J. Phys. Conf. Ser.* 664 (2015) 042056, doi:[10.1088/1742-6596/664/4/042056](https://doi.org/10.1088/1742-6596/664/4/042056)
- J. Balcas et al., **Using the GlideinWMS System as a Common Resource Provisioning Layer in CMS**, *J. Phys. Conf. Ser.* 664 (2015) 062031, doi:[10.1088/1742-6596/664/6/062031](https://doi.org/10.1088/1742-6596/664/6/062031)
- J. Balcas et al., **Pushing HTCondor and glideinWMS to 200K+ Jobs in a Global Pool for CMS before Run 2**, *J. Phys. Conf. Ser.* 664 (2015) 062030, doi:[10.1088/1742-6596/664/6/062030](https://doi.org/10.1088/1742-6596/664/6/062030)
- G. Garzoglio et al., **Diversity in Computing Technologies and Strategies for Dynamic Resource Allocation**, *J. Phys. Conf. Ser.* 664 (2015) 012001, doi:[10.1088/1742-6596/664/1/012001](https://doi.org/10.1088/1742-6596/664/1/012001)
- C. Group et al., **Fermilab Computing at the Intensity Frontier**, *J. Phys. Conf. Ser.* 664 (2015) 032012, doi:[10.1088/1742-6596/664/3/032012](https://doi.org/10.1088/1742-6596/664/3/032012)
- S. Belforte et al., **Evolution of the Pilot Infrastructure of CMS: Towards a Single GlideinWMS Pool**, *J. Phys. Conf. Ser.* 513 (2014) 032041, doi:[10.1088/1742-6596/513/3/032041](https://doi.org/10.1088/1742-6596/513/3/032041)
- S. Campana et al., **Deployment of a WLCG network monitoring infrastructure based on the perfSONAR-PS technology**, *J. Phys. Conf. Ser.* 513 (2014) 062008, doi:[10.1088/1742-6596/513/6/062008](https://doi.org/10.1088/1742-6596/513/6/062008)
- J. Adelman et al., **CMS Computing Operations During Run 1**, *J. Phys. Conf. Ser.* 513 (2014) 032040, doi:[10.1088/1742-6596/513/3/032040](https://doi.org/10.1088/1742-6596/513/3/032040)
- P. Kreuzer et al., **Opportunistic Resource Usage in CMS**, *J. Phys. Conf. Ser.* 513 (2014) 062028, doi:[10.1088/1742-6596/513/6/062028](https://doi.org/10.1088/1742-6596/513/6/062028)
- I. Dzhunov et al., **Towards a Centralized Grid Speedometer**, *J. Phys. Conf. Ser.* 513 (2014) 032028, doi:[10.1088/1742-6596/513/3/032028](https://doi.org/10.1088/1742-6596/513/3/032028)
- I. Sfiligoi et al., **CMS experience of running glideinWMS in High Availability mode**, *J. Phys. Conf. Ser.* 513 (2014) 032086, doi:[10.1088/1742-6596/513/3/032086](https://doi.org/10.1088/1742-6596/513/3/032086)

- T. Chwalek et al., **No File Left Behind - Monitoring Transfer Latencies in PhEDEx**, *J. Phys. Conf. Ser.* 396 (2012) 032089, doi:[10.1088/1742-6596/396/3/032089](https://doi.org/10.1088/1742-6596/396/3/032089)
- E. Fajardo et al., **A New Era for Central Processing and Production in CMS**, *J. Phys. Conf. Ser.* 396 (2012) 042018, doi:[10.1088/1742-6596/396/4/042018](https://doi.org/10.1088/1742-6596/396/4/042018)
- R. Kaselis et al., **CMS Data Transfer Operations After the First Years of LHC Collisions**, *J. Phys. Conf. Ser.* 396 (2012) 042033, doi:[10.1088/1742-6596/396/4/042033](https://doi.org/10.1088/1742-6596/396/4/042033)
- J. Molina-Perez et al., **Monitoring Techniques and Alarm Procedures for CMS Services and Sites in WLCG**, *J. Phys. Conf. Ser.* 396 (2012) 042041, doi:[10.1088/1742-6596/396/4/042041](https://doi.org/10.1088/1742-6596/396/4/042041)
- J. Adelman-McCarthy et al., **CMS distributed computing workflow experience**, *J. Phys. Conf. Ser.* 331 (2011) 072019, doi:[10.1088/1742-6596/331/7/072019](https://doi.org/10.1088/1742-6596/331/7/072019)
- M. Albert et al., **Experience Building and Operating the CMS Tier-1 Computing Centres**, *J. Phys. Conf. Ser.* 219 (2010) 072035, doi:[10.1088/1742-6596/219/7/072035](https://doi.org/10.1088/1742-6596/219/7/072035)
- D. Bradley et al., **Use of glide-ins in CMS for production and analysis**, *J. Phys. Conf. Ser.* 219 (2010) 072013, doi:[10.1088/1742-6596/219/7/072013](https://doi.org/10.1088/1742-6596/219/7/072013)
- O. Gutsche, **Validation of Software Releases for CMS**, *J. Phys. Conf. Ser.* 219 (2010) 042040, doi:[10.1088/1742-6596/219/4/042040](https://doi.org/10.1088/1742-6596/219/4/042040)
- W. Adam et al., **Stand-alone Cosmic Muon Reconstruction Before Installation of the CMS Silicon Strip Tracker**, *JINST*. 4 (2009) P05004, doi:[10.1088/1748-0221/4/05/P05004](https://doi.org/10.1088/1748-0221/4/05/P05004), arXiv:0902.1860 [physics.ins-det]
- D. Evans et al., **Large scale job management and experience in recent data challenges within the LHC CMS experiment**, *PoS. ACAT08* (2008) 032, doi:[10.22323/1.070.0032](https://doi.org/10.22323/1.070.0032)
- O. Gutsche et al., **WLCG scale testing during CMS data challenges**, *J. Phys. Conf. Ser.* 119 (2008) 062033, doi:[10.1088/1742-6596/119/6/062033](https://doi.org/10.1088/1742-6596/119/6/062033)
- D. Spiga et al., **CRAB: The CMS distributed analysis tool development and design**, *Nucl. Phys. B Proc. Suppl.* 177-178 (2008) 267–268, doi:[10.1016/j.nuclphysbps.2007.11.124](https://doi.org/10.1016/j.nuclphysbps.2007.11.124)
- D. Spiga et al., **The CMS Remote Analysis Builder (CRAB)**, *Lect. Notes Comput. Sci.* 4873 (2007) 580–586, doi:[10.1007/978-3-540-77220-0\\_52](https://doi.org/10.1007/978-3-540-77220-0_52)
- F. Farina et al., **Status and evolution of CRAB**, *PoS. ACAT* (2007) 020, doi:[10.22323/1.050.0020](https://doi.org/10.22323/1.050.0020)
- O. Kind et al., **A ROOT based client server event display for the ZEUS experiment**, *eConf.* C0303241 (2003) MOLT002. <http://arxiv.org/abs/hep-ex/0305095>, arXiv:hep-ex/0305095 [hep-ex]

- 
- Full List of Physics Publications with Major Personal Contributions can be found [here](#).
  - Full List of Publications from all Collaborations and Experiments can be found [here](#).