

# Yongbin Feng

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## EMPLOYMENT

- 09/2024 - Present, **Assistant Professor of Physics**  
*Texas Tech University*, Department of Physics and Astronomy, Lubbock, Texas, USA
- 11/2020 - 08/2024, **Postdoctoral Research Associate**  
*Fermi National Accelerator Laboratory*, Particle Physics Division, Batavia, Illinois, USA

## EDUCATION

- **University of Maryland, College Park**, College Park, Maryland, USA  
*Ph.D. in Physics*, Aug. 2015 - Oct. 2020
- **University of Science and Technology of China**, Hefei, Anhui, China  
*B.S. in Physics*, Aug. 2011 - Jun. 2015

## PROFESSIONAL EXPERIENCE

- May 2025 - Present, CMS Particle Flow Reconstruction Group L3 Convener
- Jun. 2024 - Present, Fast Machine Learning Coprocessor Group Coordinator
- Sep. 2023 - Sep. 2025, CMS Standard Model Group Vector Boson (SMP-V) L3 Convener
- Feb. 2022 - Sep. 2023, CMS Machine Learning Production Group L3 Convener

## SELECTED PUBLICATIONS

### Publications with significant contributions

- CMS Collaboration, “DeepMET: Improving missing transverse momentum estimation with a deep neural network”, CMS Physics Analysis Summary CMS-PAS-JME-24-001, 2025. (Analysis contact.)
- A. Apyan et al., “Performance measurements of the electromagnetic calorimeter and readout electronics system for the DarkQuest experiment”, [arXiv:2502.20590](#). Submitted to *NIM-A*
- Y.-T. Chou et al., “Track reconstruction as a service for collider physics”, January, 2025. [arXiv:2501.05520](#). Accepted by *JINST*
- CMS Collaboration, “Measurement of the inclusive cross sections for W and Z boson production in proton-proton collisions at  $\sqrt{s} = 5.02$  and 13 TeV”, *JHEP* **04** (2025) 162, doi: 10.1007/JHEP04(2025)162, [arXiv:2408.03744](#). (Analysis Contact.)
- CMS Collaboration, “Search for a resonance decaying to a W boson and a photon in proton-proton collisions at  $\sqrt{s} = 13$  TeV using leptonic W boson decays”, *JHEP* **09** (2024) 186, doi: 10.1007/JHEP09(2024)186, [arXiv:2406.05737](#)
- CMS Collaboration, “Portable Acceleration of CMS Computing Workflows with Coprocessors as a Service”, *Comput. Softw. Big Sci.* **8** (2024) 17, doi: 10.1007/s41781-024-00124-1, [arXiv:2402.15366](#). (Analysis Contact.)
- T. Li et al., “Semi-supervised graph neural networks for pileup noise removal”, *Eur. Phys. J. C* **83** (2023) 99, doi: 10.1140/epjc/s10052-022-11083-5, [arXiv:2203.15823](#)

- A. Apyan et al., “DarkQuest: A dark sector upgrade to SpinQuest at the 120 GeV Fermilab Main Injector”, March, 2022. [arXiv:2203.08322](#)
- CMS Collaboration, “Search for new particles decaying to a jet and an emerging jet”, *JHEP* **02** (2019) 179, doi: 10.1007/JHEP02(2019)179, [arXiv:1810.10069](#)

### Publications with involvement

- CMS Collaboration, “High-precision measurement of the W boson mass with the CMS experiment at the LHC”, [arXiv:2412.13872](#). Submitted to *Nature*
- H. Zhao et al., “Graph Neural Network-based Tracking as a Service”, February, 2024. [arXiv:2402.09633](#)
- CMS Collaboration, “Measurements of the inclusive W and Z boson production cross sections and their ratios in proton-proton collisions at  $\sqrt{s} = 13.6$  TeV”, [arXiv:2503.09742](#). Submitted to *JHEP*
- M. Agarwal et al., “Applications of Deep Learning to physics workflows”, June, 2023. [arXiv:2306.08106](#)
- S. Liu et al., “Structural Re-weighting Improves Graph Domain Adaptation”, in *Proceedings of the 40th International Conference on Machine Learning (ICML)*, volume 202 of *Proceedings of Machine Learning Research*, p. 21778. July, 2023
- P. Harris et al., “Physics Community Needs, Tools, and Resources for Machine Learning”, in *2022 Snowmass Summer Study*. March, 2022. [arXiv:2203.16255](#)
- C. Papageorgakis et al., “Dose rate effects in radiation-induced changes to phenyl-based polymeric scintillators”, *Nucl. Instrum. Meth. A* **1042** (2022) 167445, doi: 10.1016/J.NIMA.2022.167445, [arXiv:2203.15923](#)

### SEMINARS and COLLOQUIUMS

- *Advancing Energy Measurements in Collider Experiments with Machine Learning*  
**Seminar** presented at the A3D3 Seminar, virtual, March 2025
- *Looking into Dark Sector with a proton fixed-target experiment at Fermilab - DarkQuest*  
**Seminar** presented at the High Energy Physics Seminar, University of Florida, Gainesville, Florida, USA, November 2024
- *Towards better machine-learning model deployment - Inference as a service*  
**Seminar** presented at the Fermilab lab-wide AI meetings, Batavia, Illinois, USA, June, 2024
- *Towards Preciser Examinations of the Standard Model*  
**Seminar** presented at the HEP Seminars of the University of Maryland, College Park, Maryland, USA, March 2024
- *Towards Preciser Examinations of the Standard Model*  
**Seminar** presented at the HEP Seminars of Purdue University, West Lafayette, Indiana, USA, February 2024
- *Pushing the Precision Boundary of the Standard Model with Modern Tools*  
**Colloquium** of Department of Physics and Astronomy at Texas Tech University, Lubbock, Texas, USA, February 2024
- *DarkQuest*  
**Seminar** presented at Karlsruhe Institute of Technology, Karlsruhe, Germany, July 2023
- *Introduction to Graph Neural Networks*  
**Seminar** presented at the Fermilab lab-wide AI meetings, Batavia, Illinois, USA, November 2022

- *DarkQuest - Probing dark sector with a proton fixed-target experiment at Fermilab*  
**Seminar** presented at the SYSU-PKU Particle Physics Forum, Virtual, May 2022.
- *Semi-supervised graph neural network for pileup noise removal*  
**Seminar** presented at the University of Washington Machine Learning Forum, Virtual, May 2022.
- *Search for emerging jets and other long-lived states with the CMS experiment*  
**Seminar** presented at Experimental particle physics seminars of the University of Pennsylvania, Philadelphia, Pennsylvania, USA, November 2019.

## CONFERENCE TALKS and POSTERS

- *Recent electroweak precision measurements in CMS*  
**Talk** presented at the LHC Physics Conference (LHCP 2024), Boston, Massachusetts, USA, June 2024
- *Portable Acceleration of CMS Production Workflow with Inference as a service*  
**Poster** presented at the Advanced Computing and Analysis Techniques in Physics Research (ACAT) 2024, Stony Brook, New York, USA, March 2024
- *Low pileup fiducial measurements in CMS*  
**Talk** presented at the LHC electroweak precision subgroup meeting, CERN, Switzerland, November 2023
- *DarkQuest - Probing dark sector with a proton fixed-target experiment at Fermilab*  
**Invited talk** presented at the 2023 Aspen Conference for Physics, Aspen, Colorado, USA, March 2023
- *Exa.TrkX inference as-a-service*  
**Talk** presented at the Fast Machine Learning Workshop, Dallas, Texas, USA, October 2022
- *DarkQuest - Searching for light dark matter with a proton fixed-target experiment at Fermilab*  
**Talk** presented at the 2022 Phenomenology Symposium, Pittsburgh, Pennsylvania, USA, May 2022.
- *Semi-supervised machine learning for pileup per particle identification with graph neural networks*  
**Talk** presented at the 2021 BOOST workshop, Virtual, August 2021.
- *Searching for light dark matter at Fermilab's proton-fixed target experiment: DarkQuest*  
**Talk** presented at the 2021 Particle Physics and Cosmology Workshop, Norman, Oklahoma, USA, May 2021.
- *Search for new particles decaying into a jet and an emerging jet*  
**Poster** presented at the 2019 Winter LHCC meeting Students Poster Session, CERN, Geneva, Switzerland, February 2019.
- *Search for New Physics with Emerging Jets*  
**Talk** presented at the 2018 APS April Meeting, Columbus, Ohio, USA, April 2018.

## TEACHING EXPERIENCE

- *Instructor*, PHYS 3306 Electricity and Magnetism II, Texas Tech University, Spring 2025 (9 students)
- *Instructor*, PHYS 3305 Electricity and Magnetism I, Texas Tech University, Fall 2024 (12 students), Fall 2025 (27 students)
- *Lecturer*, Hands-on demo of coprocessors as a service with SONIC at Computational HEP Traineeship Summer School, Fermilab, May 2024
- *Lead Facilitator*, Inference Hands-on session of the CMS Machine Learning Town Hall, CERN, July 2021
- *Lead Facilitator*, MET short exercise of CMS Data Analysis School (DAS) and LPC Hands-on Tutorial Sessions (HATS), Top mass measurement long exercise of CMS DAS 2022, Fermilab, January 2021 - January 2024

- *Facilitator*, Search for structures in the  $J/\psi J/\psi$  mass spectrum long exercise of CMS DAS 2024,  $HH(b\bar{b}b\bar{b})$  long exercise of CMS DAS 2021, Machine Learning Hands-on Advanced Tutorial (HATS) of the LHC Physics Center (LPC) HATS, Fermilab, January 2021 - January 2024
- *Teaching Assistant*, PHYS276 Electronics Lab, 3 sessions, about 40 students, Maryland, Fall 2015
- *Teaching Assistant*, Introduction to Electromagnetism (for first-year physics major undergraduate students), about 90 students, USTC, Spring 2015

## STUDENTS SUPERVISED

- Graduate students
  - Valdis Slokenbergs (09/2024 - Now)
- Undergraduate students
  - Harry Brittan (11/2024 - Now)

## SCHOLARSHIPS

- National Endeavor Scholarship, USTC, 2013
- Outstanding Student Scholarship (First Class), USTC, 2013, 2014, 2015
- Industrial Responsibility Scholarship, USTC, 2012

## OUTREACH ACTIVITIES

- *69th South Plains Regional Science and Engineering Fair*  
**Judge** reviewing local high school students scientific research activities and posters, February 2025
- *Discussion on the 2024 Nobel Prize of Physics in Machine Learning*  
**Public lecture** presented at the physics department, Texas Tech University, Lubbock, Texas, USA, November 2024

## ORGANIZED ACTIVITIES

- Scientific Organizing Committee, Thrid Annual US-FCC workshop, 2025
- Co-organizer, LPC Physics Forum, 2022 - 2025
- Local Organizer, CERN-Fermilab Collider Physics Summer School, 2022