Caleb Fangmeier

Education

2008–2013 **BS**, *Univ. of Nebraska - Lincoln*, Physics, & Computer Science
2013–2016 **MS**, *Univ. of Nebraska - Lincoln*, Physics
2013–2019 **PHD**, *Univ. of Nebraska - Lincoln*, Physics

Doctoral thesis

title *Measurement of the production cross section of four top quarks in proton-proton collisions at 13 TeV*

supervisor Frank Golf

Experience

2013–2020 **Graduate Research Assistant**, *UNL*
- Developed control software for a gantry used in the production of CMS pixel detector modules; deployed same software on similar gantries at leading US research institutions
- Designed a particle telescope based on silicon strip detectors
- Contributed to the reconstruction of electrons at CMS by optimizing the algorithm used to match tracks with electromagnetic calorimeter energy deposits

Jan 2020–June 2020 **Postdoctoral Researcher**, *UNL*
- Assisted in the coordination of student projects including
  - Identifying candidate encapsulation materials for CMS upgrades that are robust against high radiation doses and large temparature swings
  - Design and construction of a detector section mockup to assess the sufficiency of the anticipated cooling system
- Sourced specialized equipment for for new and ongoing studies

June 2020–Current **Detector Lab Manager**, *UNL*
- Oversaw day to day lab activities and provided support to students and post docs
- Built, and maintained a web-based electronic logbook to track and report lab activities
- Managed small and large purchases of equipment and supplies for lab work
- Served as the coordinator of module design and assembly for the ETL detector at CMS which included
  - Refining the module design for increased robustness and ease of assembly
  - Designed fixtures for automated module assembly and worked with machine shop to produce them
  - Designed and procured mock module components to verify assembly at scale

Computer skills

Languages Python, C/C++, LabVIEW, Java, Javascript
Libraries ROOT, OpenCV, NumPy, Matplotlib, Flask, FastAPI
Software Linux, Git, KiCAD, GIMP, Audacity, Autodesk Inventor

126 N 16th St – Lincoln, NE
+1 (402) 768 1358 • caleb@fangmeier.tech • cfangmeier