

Caleb Fangmeier

Education

- 2008–2013 **BS**, *Univ. of Nebraska - Lincoln*, Physics.
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

- 2010–2013 **Student Worker**, *UNL*.
- Used Arduinos to measure performance of temperature/humidity sensors
 - Designed and implemented PixelGUI, a specialized exploratory data analysis tool
 - Analyzed data collected by the CMS experiment to measure the pixel detector's effective resolution and charge collection efficiency
- 2013–2020 **Graduate Research Assistant**, *UNL*.
- Led the development of the 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
- 2020–Current **Postdoctoral Researcher**, *UNL*.
- Assisted in the coordination of several projects being carried out by undergraduate and graduate students in the UNL Silicon Lab, including
 - Identifying candidate encapsulation materials for CMS upgrades that are robust against high radiation doses and large temperature swings
 - Design and construction of a detector section mockup to assess the sufficiency of the anticipated cooling system
 - Prototyping of a scintillator based tracker to be used in the study of plasma-induced electron beams
 - Sourced specialized equipment for for new and ongoing studies

Computer skills

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

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