EVAN KLOSE FRIIS

Rue Virginio-Malnati 24
1217 Meyrin
Switzerland
evan.friis@cern.ch
+1 (530) 207-0353

ACADEMICS

2011-Present	**Postdoctoral Scholar, University of Wisconsin**
Postgraduate	Maintained and supported Regional Calorimeter Trigger. Serve as analyst and co–editor for the VH Higgs publications. Convener of CMS Tau Physics Object Group.
June 2011	**University of California, Davis**
Ph.D. Experimental High Energy Physics	Thesis: "Search for Neutral MSSM Higgs Bosons Decaying to Pairs of τ Leptons at $\sqrt{s} = 7$ TeV." Advisor: Professor John Conway
June 2005	**University of California, San Diego**
B.S. Physics	Research experience: Designed LabView control system for non-neutral positron plasma trap.

TECHNICAL SKILLS

Software	Strong C++ and Python, multivariate and statistical analysis, ROOT, GNU/Linux, RooFit, LaTeX, GRID computing. Developed data analysis framework used to process petabytes of CMS data. Contributor to open source HEP projects.
Electronics	Analog/Digital, board repair/rework, VME, Arduino/Atmel Microcontrollers

RESEARCH EXPERIENCE

2011-Present	**Regional Calorimeter Trigger (RCT), CMS**
Operations	Co-responsible for on-call operation of RCT, consisting of 10 racks of custom hardware in VME crates processing 16 Tbaud of input data. Maintained an RCT uptime of 99.8% during 2011 and 2012 data taking. Primary developer of RCT online control and monitoring software. Responsible for development of new algorithms to support 2014 RCT hardware upgrade.
2009-Present	**Higgs Group, CMS**
Higgs physics	Major contributor to analyses searching for Higgs bosons in the H$\to \tau\tau \to \mu\tau_{\mathrm{h}}$ and W/ZH$\to \ell(\ell)\tau\tau$ channels. Measured $Z \to \tau\tau$ cross section using the 2010 CMS data set. Authored the "Secondary Vertex Fit," a novel dynamical likelihood algorithm for reconstructing the invisible energy in τ lepton events that improved the performance of the CMS Higgs search by 20%. Editor of the HIG-12-006, HIG-12-010, HIG-12-051, and HIG-12-053 analysis publications.
2006-Present	**Tau Physics Object Group, CMS**
Tau Identification	Developed the "Tau Neural Classifier" identification algorithm using an ensemble of neural networks, which improved the performance by a factor of five with respect to the previous CMS algorithm. Served as the coordinator and

primary author of the offline tau software. Convener of CMS Tau group for the 2013-2014 term.

2007-2008 Pixel Detector Calibrations, CMS

Pixel Detector Designed and developed software to measure the gain, noise, and thresholds of the sixty million channels of the CMS silicon pixel detector. Developed tools to store calibration results in the CMS conditions database.

LEADERSHIP

2013-Present CMS Tau Physics Object Group Convener

Second highest physics management level in CMS. Coordinate tau-related service contributions from over 30 different physicists. Responsible for allocating manpower and approving tau-related physics results.

2009-2012 CMS Tau Offline Software Coordinator

Responsible for coordinating the development, integration, and maintenance of all CMS tau software.

AWARDS AND HONORS

Spring 2010 Finalist, UC Davis Big Bang! Business Plan Competition

Spring 2009 Visiting Scholar, Scuola Normale Superiore, Pisa, Italy

2005, 2009 UC Davis Block Grant Recipient

2006-2007, 2009 UC Davis GAANN Fellow

TEACHING

January 2010 Workshop Facilitator, EJTERM 2010, Fermilab

Five quarters UC Davis Physics 116 Electronics Lab Assistant - assisted in developing new curriculum using modern microcontrollers.

Three quarters UC Davis General Physics (7/9)

INVITED TALKS

Nov 2012 "Search for Higgs$\to \tau\tau$ at CMS", LHC Physics Center Seminar, Batavia, IL

Nov 2012 "Search for Higgs$\to \tau\tau$ at CMS", Chicago Workshop on LHC Physics in the Higgs Era, Chicago, IL

June 2012 "Search for non-SM Higgs at CMS", Physics@LHC, Victoria, British Columbia

July 2011 "Beyond the Standard Model Higgs at CMS", Higgs Hunting 2011, Orsay, France

April 2011 "Search for Neutral MSSM Higgs Bosons Decaying to Taus", LPC Physics Forum, Fermilab, Illinois

April 2011 "Tau Reconstruction at CMS", Tau Portal HEFTI Workshop, Davis, California

September 2010 "Tau Reconstruction and Identification in CMS", 11th International Workshop on Tau Lepton Physics, Manchester, United Kingdom

May 2010 "Tau ID Object Performance", US CMS Collaboration Meeting, Brown University, Providence, Rhode Island