NAME: Jennifer Ngadiuba

POSITION TITLE & INSTITUTION: Associate Scientist (Wilson Fellow), Fermi National Accelerator Lab

A. PROFESSIONAL PREPARATION - (see PAPPG Chapter II.C.2.f.(i)(a))

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE (if applicable)	YEAR (YYYY)
University of Zurich	Zurich, Switzerland	Physics	Ph.D.	2017
Universita degli Studi di Milano-Bicocca	Milan, Italy	Physics	M.Sc.	2012

B. APPOINTMENTS - (see PAPPG Chapter II.C.2.f.(i)(b))

From - To	Position Title, Organization and Location
2021-present	Wilson Fellow, Fermi National Accelerator Laboratory, Batavia, IL, USA
2020-2021	Postdoctoral Researcher (Robert A. Millikan Prize Fellow), California Institute of Technology, Pasadena, CA, USA
2017-2020	Postdoctoral Researcher (CERN fellow), CERN, Geneva, Switzerland
2013-2017	Graduate Research Assistant, University of Zurich, Zurich, Switzerland
2011-2012	Undergraduate Research Assistant, Fermi National Accelerator Laboratory, Batavia, IL, USA

C. PRODUCTS - (see PAPPG Chapter II.C.2.f.(i)(c)) Products Most Closely Related to the Proposed Project

- J. Duarte, J. Ngadiuba, et al., "Fast inference of deep neural networks in FPGAs for particle physics", JINST 13 P07027 (2018)

- J. Ngadiuba et al., "Compressing deep neural networks on FPGAs to binary and ternary precision with HLS4ML", Mach. Learn.: Sci. Technol. 2, 015001 (2020)

- Claudionor N. Coelho, J. Ngadiuba, et al. "Automatic heterogeneous quantization of deep neural networks for low-latency inference on the edge for particle detectors", Nature Machine Intelligence, Volume 3 (2021)

- V. Loncar, J. Ngadiuba, et al. "Fast convolutional neural networks on FPGAs with hls4ml", Mach. Learn.: Sci. Technol. 2 045015 (2021)

- J. Ngadiuba, K. A. Wozniak, et al., "New Physics Agnostic Selections For New Physics Searches", EPJ Web Conf., 245 (2020) 06039

- J. Ngadiuba, E. Govorkova, et al., "Autoencoders on FPGAs for real-time, unsupervised new physics detection at 40 MHz at the Large Hadron Collider", arxiv.2108.03986, Accepted by Nature Machine Intelligence

- J. Ngadiuba, E. Puljak, et al., "LHC physics dataset for unsupervised New Physics detection at 40 MHz", arxiv.2107.02157, Accepted by Nature Machine Intelligence

- J. Ngadiuba and M. Pierini, "Hunting anomalies with an AI trigger", CERN Courier Volume 61 Number 5

Other Significant Products, Whether or Not Related to the Proposed Project

- A. McCarn, et al. "Applications and Techniques for Fast Machine Learning in Science", arxiv.2110.13041 Submitted to Frontiers in Artificial Intelligence

- P. Jawahar, et al., "Improving Variational Autoencoders for New Physics Detection at the LHC with Normalizing Flows", arxiv.2110.08508, Submitted to Frontiers in Artificial Intelligence

- M. Pierini, S. Caron, et al, "The Dark Machines Anomaly Score Challenge: Benchmark Data and Model Independent Event Classification for the Large Hadron Collider", arxiv.2105.14027, Submitted to SciPost

- CMS Collaboration, "A multi-dimensional search for new heavy resonances decaying to boosted WW, WZ, or ZZ boson pairs in the dijet final state at 13 TeV", Eur. Phys. J. C 80 (2020) 237

- CMS Collaboration, "Combination of CMS searches for heavy resonances decaying to pairs of bosons or leptons", Phys. Lett. B 798 (2019) 134952

D. SYNERGISTIC ACTIVITIES - (see PAPPG Chapter II.C.2.f.(i)(d))

- Collaborator of Fast Machine Learning for fundamental physics research collective (fastmachinelearning.org)
- Core developer of hls4ml tool (fastmachinelearning.org/hls4ml/)
- Guest editor of the research topic "Efficient AI in Particle Physics and Astrophysics" in Frontiers
- Member of scientific committee of conferences focused on computing and advance analysis tools in particle physics (CHEP 2019, ACAT 2021, AISIS 2021)
- Organizer of tutorials and seminars on AI at CERN (https://indico.cern.ch/event/882992/, https://indico.cern.ch/event/893116/)
- Coordinator of CMS analysis group focused on searched for new diboson resonances in within the B2G physics analysis group (2019-2021)
- Organizer of the real-time anomaly detection community data challenge (https://mpp-hep.github.io/ADC2021/)
- Collaborator of ExaTrk DOE-HEP computing project on machine learning solutions in HEP tracking challenges (https://exatrkx.github.io/)