NSF BIOGRAPHICAL SKETCH

NAME: Camporeale, Enrico

POSITION TITLE & INSTITUTION: Research Associate, CIRES

(a) PROFESSIONAL PREPARATION

INSTITUTION	LOCATION	MAJOR / AREA OF STUDY	DEGREE (if applicable)	YEAR YYYY
Polytechnic of Turin	Turin, Italy	Nuclear Engineering	MENG	2004
Queen Mary University of London	London, United Kingdom	Space Physics	PHD	2008
Queen Mary University of London	London , United Kingdom		Postdoctoral Fellow	2008 - 2010
Los Alamos National Laboratory	Los Alamos, NM		Postdoctoral Fellow	2010 - 2013

(b) APPOINTMENTS

2019 - present   Research Associate, CIRES, University of Colorado, Boulder, CO

2014 - 2020   Scientific Staff Member, Center for Mathematics and Computer Science (CWI), Amsterdam

(c) PRODUCTS

Products Most Closely Related to the Proposed Project

1. Camporeale E, Cash MD, Singer HJ, Balch CC, Huang Z, Toth G. A gray-box model for a probabilistic estimate of regional ground magnetic perturbations: Enhancing the NOAA operational Geospace model with machine learning. Journal of Geophysical Research. 2020 October 17.

2. Camporeale E. The challenge of machine learning in space weather: Nowcasting and forecasting. Space Weather. 2019 July 04; 17(8):1166.

3. Sarma R, Chandorkar M, Zhelavskaya I, Shprits Y, Drozdov A, Camporeale E. Bayesian Inference of Quasi-Linear Radial Diffusion Parameters using Van Allen Probes. Journal of geophysical research. Space physics. 2020 April 07. Available from: https://doi.org/10.1029/2019JA027618

4. McGranaghan RM, Ziegler J, Bloch T, Hatch S, Camporeale E, Lynch K, Owens M, Gjerloev J, Zhang B, Skone S. Toward a next generation particle precipitation model: Mesoscale prediction through machine learning (a case study and framework for progress). Space weather : the international journal of research & applications. 2021 April 16; 19(6). Available from: https://doi.org/10.1029/2020SW002684

5. Hu A, Sisti M, Finelli F, Califano F, Dargent J, Faganello M, Camporeale E, Teunissen J. Identifying Magnetic Reconnection in 2D Hybrid Vlasov Maxwell Simulations with Convolutional Neural Networks. The Astrophysical journal. 2020 September 03; 900(1). Available from: https://iopscience.iop.org/article/10.3847/1538-4357/aba527/pdf

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

1. Camporeale E, Care A, Borovsky JE. Classification of solar wind with machine learning. Journal of geophysical research. Space physics. 2017 October 16; 122(11):10910. Available from: https://doi.org/10.1002/2017JA024383

2. In: Camporeale E, Wing S, Johnson JR, editors. Machine Learning techniques for Space Weather [Internet] Amsterdam: Elsevier; 2018. Available from: https://doi.org/10.1016/C2016-0-01976-9

3. Camporeale E, Chu X, Agapitov OV, Bortnik J. On the generation of probabilistic forecasts from deterministic models. Space weather : the international journal of research & applications. 2019 February 20; 17(3):455. Available from: https://doi.org/10.1029/2018SW002026

4. Gruet M, Chandorkar M, Sicard A, Camporeale E. Multiple-Hour-Ahead Forecast of the Dst Index Using a Combination of Long Short-Term Memory Neural Network and Gaussian Process. Space Weather. 2018 June 25; 16(11):1882. Available from: https://doi.org/10.1029/2018SW001898

5. Camporeale E, Shprits Y, Chandorkar M, Drozdov A, Wing S. On the propagation of uncertainties in radiation belt simulations. Space weather : the international journal of research & applications. 2016 October 22; 14(11):982. Available from: https://doi.org/10.1002/2016SW001494

(d) SYNERGISTIC ACTIVITIES

1. Chair of the Conference on Machine Learning in Heliophysics (ML-Helio https://ml-helio.github.io/)

2. Secretary of the Nonlinear Geophysics section of the American Geophysical Union (AGU)

3. Associate Editor for the Journal of Space Weather and Space Climate www.swsc-journal.org

4. Guest Lecturer in the graduate course Remote Sensing Data Analysis (ASEN 6337) at the University of Colorado, Boulder (academic year 2019/20) and Computational Astrophysics at the University of Amsterdam (academic years 2015, 2016, 2017)

5. Session convener at AGU Fall Meeting (2017-present) and European Space Weather Week (2016-present) on the topic of "Machine Learning in Space Weather"