CURRICULUM VITAE

EUNSU PARK (박은수)

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1] PERSONAL INFORMATION

Date of Birth:January 15, 1990

Gender:Male

Nationality:Republic of Korea

Current Position:Korea Astronomy and Space science Institute (KASI)

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2] EDUCATION

Ph. D. (2016.03 – 2020.02)

School of Space Research, Kyung Hee University, Korea.

M. S. (2014.03 – 2016.02)

School of Space Research, Kyung Hee University, Korea

B. S. (2008.03 – 2014.02)

Dept. of Astronomy and Space Science, Kyung Hee University, Korea

3] RESEARCH INTEREST

Solar physics, Space Weather, and Deep Learning

Development of space weather forecasting models based on solar physics and deep learning

4] SKILL

Keras, TensorFlow, and PyTorch on Python

Solarsoft on IDLs

5] PARTICIPATION IN SCHOOL PROGRAM

2016. 01. SOKENDAI Asian Solar Physics Winter School, Japan

2014. 06. NASA/CCMC Space Weather REDI Summer Bootcamp, USA

6] PUBLICATION

1. K.-S. Cho, J. Kim, R.-S. Kim, **Eunsu Park**, Y. Kubo, and K. Iwai, Automatic Detection of Type II Solar Radio Burst by Using 1-D Convolution Neutral Network, Journal of the Korean Astronomical Society, 56(2), 213, doi:10.5303/JKAS.2023.56.2.213

2. Y.-J. Moon, H. Lee, J. Son, S.-K. Sung, K. Yi, H.-J. Jeong, Eunsu Park, E.-Y. Ji, I.-H. Cho, B. Lawrance, D. Lim, G. Shin, S. Lee, S. Rahman, and T. Kim, Application of Deep Learning to Solar and Space Weather Data, Proceedings of the International Astronomical Union, 18, 131

3. S. Rahman, S. Shin, H.-J. Jeong, A. Siddique, Y.-J. Moon, J. Kang, S.-H. Bae, and **Eunsu Park**, Fast Reconstruction of 3D Density Distribution around the Sun based on the MAS by Deep Learning, Astrophysical Journal, 948, 21, doi:10.3847/1538-4357/acbd3c

4. **Eunsu Park**, H. Lee, Y.-J. Moon, J.-Y. Lee, I.-H. Cho, K.-S. Lee, D. Lim, H.-J. Jeong, and J.-O. Lee, Pixel-to-pixel translation of solar EUV images for DEMs by Fully-connected Networks, Astrophysical Journal Supplement Series, 264, 33, doi:10.3847/1538-4365/aca902

5. K.-S. Lee, J. Chae, **Eunsu Park**, Y.-J. Moon, H. Kwak, and K. Cho, Deep Learning-based Fast Spectral Inversion of Ha and Ca II 8542 Line Spectra, Astrophysical Journal, 940, 147, doi:10.3847/1538-4357/ac9c60

6. H.-J. Jeong, Y.-J. Moon, **Eunsu Park**, H. Lee, and J.-H. Baek, Improved AI-generated Solar Farside Mangetograms by STEREO and SDO Data Sets and Their

Release, Astrophysical Journal Supplement Series, 262, 50, doi:10.3847/1538-4365/ac8d66

7. B. Lawrance, H. Lee, **Eunsu Park**, I.-H. Cho, Y.-J. Moon, J.-Y. Lee, A. Shanmugaraju, and S. Rahman, Astrophysical Journal, 937, 111, doi:10.3847/1538-4357/ac8c24

8. S. Uneme, S. Imada, H. Lee, Eunsu Park, H. Hayakawa, T. Iju, and Y.-J. Moon, Inference of magnetic field during the Dalton minimum:Case study with recorded sunspot areas, Publications of the Astronomical Society of Japan, 74, 767, doi:10.1093/pasj/psac032

9. J. Son, J. Cha, Y.-J. Moon, H. Lee, **Eunsu Park**, G. Shin, and H.-J. Jeong, Generation of He I 1083 nm Images from SDO/AIA Images by Deep Learning, Astrophysical Journal, 920, 101, doi:10.3847/1538-4357/ac16dd

10. D. Lim, Y.-J. Moon, **Eunsu Park**, and J.-Y. Lee, Selection of Three (E)UV Channels for Solar Satellite Missions by Deep Learning, Astrophysical Journal Letters, 915, L31, doi:10.3847/2041-8213/ac0d54

11. K. Yi, Y.-J. Moon, H.-J. D. Lim, **Eunsu Park**, and H. Lee, Visual explanation of a deep learning solar flare forecast model and its relationship with physical parameters, Astrophysical Journal, 910, 8, doi:10.3847/1538-4357/abdebe

12. **Eunsu Park**, H.-J. Jeong, H. Lee, T. Kim, and Y.-J. Moon, Reply to:Reliability of AI-generated magnetograms from only EUV images, Nature Astronomy, 5, 111, doi:10.1038/s41550-021-01311-5

13. H. Lee, **Eunsu Park**, and Y.-J. Moon, Generation of modern satellite data from Galileo sunspot drawings in 1612 by deep learning, Astrophysical Journal, 907, 118, doi:10.3847/1538-4357/abce5f

14. S. Lee, E.-Y. Ji, Y.-J. Moon, and **Eunsu Park**, One-day forecasting of Global TEC using a novel deep learning model, Space Weather, 19, 2020SW002600, doi:10.1029/2020SW002600

15. H.-J. Jeong, Y.-J. Moon, **Eunsu Park**, and H. Lee, Solar Coronal Magnetic Field Extrapolation from Synchronic Data with AI-generated Farside, Astrophysical Journal Letters, 903, L25, doi:10.3847/2041-8213/abc255

16. S. Rahman, Y.-J. Moon, **Eunsu Park**, A. Siddique, I.-H. Cho, and D. Lim, Super-resolution of SDO/HMI Magnetograms Using Novel Deep Learning Method, Astrophysical Journal Letters, 897, L32, doi:10.3847/2041-8213/ab9d79

17. G. Shin, Y.-J. Moon, **Eunsu Park**, H.-J. Jeong, H. Lee, and S.-H. Bae, Generation of High-resolution Solar Pseudo-magnetograms from Ca II K Images by Deep Learning, Astrophysical Journal Letters, 895, L16, doi:10.3847/2041-8213/ab9085

18. E.-Y. Ji, Y.-J. Moon, and **Eunsu Park**, Improvement of IRI Global TEC Maps by Deep Learning Based on conditional Generative Adversarial Networks, Space Weather, 18, 2019SW002411, doi:10.1029/2019SW002411

19. **Eunsu Park**, Y.-J. Moon, D. Lim, and H. Lee, Denoising SDO/HMI Solar Magnetograms by Image Translation Method Based on Deep Learning, Astrophysical Journal Letters, 891, L4, doi:10.3847/2041-8213/ab74d2

20. D. Lim, Y.-J. Moon, **Eunsu Park**, J. Park, K, Lee, J.-Y. Lee, and S. Jang, Ensemble Forecasting of Major Solar Flares with Short-, Mid-, and Long-term Active Region Properties, Astrophysical Journal, doi:10.3847/1538-4357/ab45e7

21. **Eunsu Park**, Y.-J. Moon, J.-Y. Lee, R.-S. Kim, H. Lee, D. Lee, G. Shin, and T. Kim, Generation of solar UV and EUV images from SDO/HMI magnetograms by deep learning, Astrophysical Journal Letters, 884, L23, doi:10.3847/2041-8213/ab46bb

22. K. Kim, J.-H. Kim, Y.-J. Moon, **Eunsu Park**, G. Shin, T. Kim, Y. Kim, and S. Hong, Nighttime Reflectance Generation in the Visible Band of Satellites, Remote Sensing, 11, 2087, doi:10.3390/rs11182087

23. D. Lim, Y.-J. Moon, J. Park, **Eunsu Park**, K. Lee, J.-Y. Lee, and S. Jang, Forecast of Daily Major Flare Probability Using Relationships between Vector Magnetic Properties and Flaring Rates, Journal of the Korean Astronomical Society, doi:10.5303/JKAS.2019.52.4.133

24. T. Kim, **Eunsu Park**, H. Lee, Y.-J. Moon, S.-H. Bae, D. Lim, S. Jang, L. Kim, I.-H. Cho, M. Choi, and K.-S. Cho, Solar farside magnetograms from deep learning analysis of STEREO/EUVI data, Nature Astronomy, 3, 397, doi:10.1038/s41550-019-0711-5

25. **Eunsu Park**, Y.-J. Moon, S. Shin, K. Yi, D. Lim, H. Lee, and G. Shin, Application of Deep Convolutional Neural Network to the Forecast of Solar Flare Occurrence Using Full-Disk Magnetograms, Astrophysical Journal, 869, 91, (2018); doi:10.3847/1538-4357/aaed40

26. H. Lee, Y.-J. Moon, V. M. Nakariakov, H. Na, I.-H. Cho, and **Eunsu Park**, Three-dimensional Oscillations of 21 Halo Coronal Mass Ejections Using Multi-spacecraft Data, Astrophysical Journal, 868, 18, (2018); doi:10.3847/1538-4357/aae5f6

27. **Eunsu Park**, Y.-J. Moon, and K. Lee, Observational test of empirical magnetopause location models using geosynchronous satellite data, Journal of Geophysical Research, 121, 10994-11006 (2016); doi:10.1002/2015JA022271