

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. 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*, Accepted
2. **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
3. 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
4. H.-J. Jeong, Y.-J. Moon, **Eunsu Park**, H. Lee, and J.-H. Baek, Improved AI-generated Solar Farside Magnetograms by STEREO and SDO Data Sets and Their Release, *Astrophysical Journal Supplement Series*, 262, 50, doi:10.3847/1538-4365/ac8d66
5. 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
6. 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

7. 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
8. 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
9. 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
10. **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
11. 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
12. 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
13. 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

14. 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
15. 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
16. 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
17. **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
18. 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
19. **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
20. 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

21. 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

22. 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

23. **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

24. 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

25. **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