Jihyeon Son

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| PUBLICATIONS

- **Six-hour Prediction of Interplanetary Magnetic Field Bz Profiles for Strong Southward Cases by Deep Learning**
  Jihyeon Son, Yong-Jae Moon, Young-Sil Kwak, Kyung Sun Park, and Hyun-Jin Jeong
  The Astrophysical Journal, 984(1), 67. (2025)

- **Three-day Forecasting of Solar Wind Speed Using SDO/AIA Extreme-ultraviolet Images by a Deep-learning Model**
  Jihyeon Son, Suk-Kyung Sung, Yong-Jae Moon, Harim Lee, and Hyun-Jin Jeong
  The Astrophysical Journal Supplement Series, 267(2), 45. (2023)

- **72-Hour Time Series Forecasting of Hourly Relativistic Electron Fluxes at Geostationary Orbit by Deep Learning**
  Jihyeon Son, Yong-Jae Moon, and Seungheon Shin
  Space Weather, 20(10), e2022SW003153. (2022)

- **Generation of He I 1083 nm Images from SDO AIA Images by Deep Learning**
  Jihyeon Son, Junghun Cha, Yong-Jae Moon, Harim Lee, Eunsu Park, Gyungin Shin, and Hyun-Jin Jeong
  The Astrophysical Journal, 920(2), 101. (2021)

- **Solar cycle Dependence of NOAA Space Weather Scale Frequencies**
  Daeil Kim, Yong-Jae Moon, Hyun-Jin Jeong, **Jihyeon Son**
  Journal of Korean Astronomical Society, 59(1), 55-61. (2025)

- **3D Magnetic Free Energy and Flaring Activity Using 83 Major Solar Flares**
  Khojiakbar Karimov, Harim Lee, Hyun-Jin Jeong, Yong-Jae Moon, Jihye Kang, **Jihyeon Son**, Mingyu Jeon, Kanya Kusano
  The Astrophysical Journal Letters, 965(1), L5. (2024)

- **Application of Deep Learning to Solar and Space Weather Data**
  Yong-Jae Moon, Harim Lee, **Jihyeon Son**, Suk-Kyung Sung, Kangwoo Yi, Hyun-Jin Jeong, Eunsu Park, Eun-Young Ji, Il-Hyun Cho, Bendict Lawrance, Daye Lim,

Gyungin Shin, Sujin Lee, Sumiaya Rahman and Taeyoung Kim
Proceedings of the International Astronomical Union, 18, S372 (2023)

| EDUCATION

2020.03 – 2024.02.

Combined Master's and Doctoral Course in Solar Physics

School of Space Research, Kyung Hee University, Republic of Korea

2015.03 – 2020.02.

Bachelor of Science in Space science

Department of Astronomy & Space Science, Kyung Hee University, Republic of Korea

| EMPLOYMENT

2025.05. – present

Postdoctoral Researcher

Center for Heliophysics Research, Korea Astronomy & Space science Institute, Republic of Korea

2024.03. – 2025.04.

Postdoctoral Researcher

Astronomy & Space Science, College of Applied Science, Kyung Hee University, Republic of Korea

| PATENTS

2023.07.

- Apparatus for predicting Solar Wind Speed using Deep Learning Model and Method thereof
  Yong-Jae Moon and **Jihyeon Son**
  10-2023-0087337, Republic of Korea Patent Application

| AWARDS

2020.12.

- **Grand Prize**, Korean Space Weather Center: Artificial Intelligence (AI) competition for space weather forecasting

| PARTICIPATED PROJECTS

2024.05. – present

- **Development of prediction models for solar wind parameters and geomagnetic activity using deep learning**
  Role: Principal Investigator

2023.01. – 2023.12.

- **Study on the solar wind forecast and 3D ionospheric modelling improvement using deep learning**
  Role: Development of solar wind forecasting model

2023.01. – 2023.12.

- **Study on the forecast of solar winds and IGS 3D ionospheric modelling technique using deep learning**
  Role: Development of solar wind speed forecasting model

2021.12. – 2024.12.

- **Development of analysis and forecast models for space weather operations**

  Role: Development of space weather forecasting model

2020.05 – 2022.02

- **Study on the forecast of the occurrence, strength, and temporal evolution of solar flares using deep learning**

  Role: Development of flare forecasting model

| SCHOOL PROGRAM

2022.05.

- Python in Heliophysics Summer School

  Madrid, Spain

| TECHNICAL REPORTS

- Python
- Analysis of solar image data and solar wind data
- Deep learning: Tensorflow keras & Pytorch
- Microsoft (Word, Excel, Powerpoint)