Do Woon Lee

Data Scientist · AI Engineer

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Personal Profile

Yonsei University graduate student who was enrolled in the astrophysics, statistics and radiative hydrodynamic simulation. Dedicated to data science and machine learning, having one or more years of expertise, and specialising in algorithms, and machine learning.

Education

SSAFY   *Seoul, South Korea*
Samsung Software Academy for Yoluth   *01.2022-08.2022*
- Programming/Software Course work

Yonsei University   *Seoul, South Korea*
M.S. in Astronomy   *09.2018-09.2021*
- Supervisor : Prof. Taysun Kimm (Yonsei)
- **Thesis:** Understanding the kinematic properties of galactic gas using Lyman alpha emission
- **Courses:** Astrophysics, Optimal Control, Data Science, Programming for Data Science, Statistics, Artificial Intelligence, Machine Learning

Yonsei University   *Seoul, South Korea*
B.S. in Astronomy   *09.2018-09.2021*
- Intensified course completion of major

Work Experience

AI & BigData R&D Institute, AsianaIDT   *Seoul, South Korea*
Senior researcher   *08.2022-*
- Collaborated with 4 people to develop MLOps service. Auto-configuration of threshold for re-training model is the main function in the service.
- Applied two patents and write one paper.
- **Technical Skills:** Python with PyTorch, NumPy, Matplotlib, Pandas, Scikit-learn, C++, Ubuntu Linux, Linux tools, Git.

SPHINX-RASCAS-TRIPLE collaboration   *Online*
Research assistant   *2020-2021*
- led by people from Centre de Recherche Astrophysique de Lyon, Observatoire de Geneve, Yonsei university, University of Oxford, University of Cambridge
- gave a talk in SPHINX-RASCAS-TRIPLE Meeting (08.2020)
- **Technical Skills:** Python ,NumPy, Matplotlib, Fortran90, MPI, OpenMP, parallel computing

Canival X project   *Seoul, South Korea*
Research assistant   *03.2013-12.2013*
- CubeSat Astronomy by NASA and Yonsei using Vision ALignment eXperiment
- Worked in propulsion system, developed attitude control system.
- **Technical Skills:** Matlab, STK (Satellite ToolKit)

Projects

Model Ops   *Seoul, South Korea*
AI & BigData R&D Institute, AsianaIDT   *08.2022-05.2023*
- Development the system to manage machine learning models. The system track down the drift statistics to auto-configure the re-learning epoch of the models
- **Patent:** A method to automatically configure a threshold for the drift statistics to monitor the performance of machine learning models.
- **Patent:** Sampling-based estimation for performance assessment in machine learning model
- **Paper:** A novel window strategy for concept drift detection in sseasonal time series.

Skills

Programming   Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), Fortran 90, C/C++, JAVA, JavaScript, SQL, MPI, OpenMP.

Writings and Patents

ARTICLES

A novel window strategy for concept drift detection in seasonal time series
Annual Spring Conference of KIPS
2023

Do Woon Lee, Sumin Bae, Kangsub Kim, Soonhon An

- Development the system to manage machine learning models. The system track down the drift statistics to auto-configure the re-learning epoch of the models
- **Patent:** A method to automatically configure a threshold for the drift statistics to monitor the performance of machine learning models.
- **Paper:** A novel window strategy for concept drift detection in seasonal time series.

Understanding the kinematic properties of galactic gas using Lyman alpha emission
Master's Thesis

Do Woon Lee

- Thesis Link
- Using radiative hydrodynamic simulations of idealized, isolated galaxies and merging galaxies, we study the relations between $Ly\alpha$, observables and physical properties of a galaxy.

Spin-Orbit alignment of subhaloes in ILLUSTRIS simulation
Graduation thesis

Do Woon Lee, Tae-hwa Yoo and Suk-Jin Yoon

- In this Study, we suggest that the large scale structure gives little effects on the alignment and the prograding tendency could be caused by the relation between haloes and their own central subhaloes.

Analysis on thruster alignment error of CANYVAL CubeSat
Annual Spring Conference of KSAS
2014

Soonhong Hwang, Myeongbo shim, Do Woon Lee, Jaepil Park, Sangyeong Park, Chandeok Park

- In this paper, thruster alignment error caused by errors in position and direction of thrusters is analyzed.

PATENTS

A method to automatically configure a threshold for the drift statistics to monitor the performance of machine learning models
AI & BigData R&D Institute,
AsianaIDT

Kangsub Kim, Seongyoon Shin, Do Woon Lee

- Inducing drift from the reference data set with giving Gaussian noise to figure out the relation between the performance and the drift value of the model.

Sampling-based estimation for performance assessment in machine learning model
AI & BigData R&D Institute,
AsianaIDT

Do Woon Lee

- Sample from the reference with joint probability of inference data set. The relation between the performance and drift value of the model from the sample gives the estimation of the performance.

Languages

English   TOEFL 98 (Expired)