DOOSEOK JUNG

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EDUCATION

Ph.D. in Astrophysics, **University of Massachusetts**, Amherst, MA 2025
M.S. in Astronomy, **Yonsei University**, Seoul, Korea (South) 2017
B.S. in Astronomy and Physics, **Yonsei University**, Seoul, Korea (South) 2014

EXPERIENCE

Amazon, Remote Feb 2026 – Current
AI Domain Expert in Physics

- Evaluate and improve advanced **AI systems** by creating challenging **physics prompts**, reviewing model-generated responses for scientific accuracy and reasoning quality, and providing clear, well-structured feedback.

Outlier AI, Remote 2025 – Jan 2026
AI Trainer in Physics, (Applied) Math

- Train and evaluate **large language models (LLMs)** in advanced physics and astrophysics by designing expert prompts, scoring scientific reasoning, and providing high-quality feedback to improve accuracy and alignment.

University of Massachusetts Amherst, Amherst, MA 2018 – 2025
Research Assistant

- Developed **STARCNET**, a multiscale **machine learning (ML) pipeline**, achieving **86% accuracy** on **~15,000 image samples**, delivering classification performance comparable to human experts.
- Refined **stochastic sampling** and **Bayesian modeling** on **~28,000 data samples**, building scalable pipelines for feature extraction, classification, and cataloging.

Space Telescope Science Institute, Baltimore, MD Summer 2024
Visiting Scholar

- Optimized **Markov Chain Monte Carlo (MCMC) algorithms**, reducing **1σ uncertainty** and improving **84th-percentile accuracy** in modeling large-scale, high-dimensional datasets.

Yonsei University, Seoul, Korea (South) 2014 – 2017
Research Assistant

- Applied **Gaussian kernel** smoothing and **chi-square model fitting** to extract patterns and quantify distributions from large-scale **2D imaging datasets**.

SELECTED PUBLICATIONS

Pérez, G., Messa, M., Calzetti, D., Maji, S., **Jung, D. E.** et al. (2021), The Astrophysical Journal, 907, 100, "STARCNET: Machine Learning for Star Cluster Identification"

CERTIFICATES & CREDENTIALS

Data Classification and Summarization Using IBM Granite, IBM SkillsBuild Fall 2025

- Trained in using **IBM Granite AI model** to automate **data analysis and summarization**, fine-tune outputs, and integrate AI tools into efficient data workflows.

Code Generation and Optimization Using IBM Granite, IBM SkillsBuild Fall 2025

- Gained hands-on experience using **IBM Granite AI model** to **generate and optimize code**, applying structured prompting techniques, performance improvement strategies, and workflow automation.

Statistics and Astroinformatics for Astronomers, Penn State Univ. Summer 2022

- Enhanced expertise in applied statistics and mathematical modeling through projects in Astrostatistics & Astroinformatics, utilizing diverse computational languages and tools related to **ML/AI** techniques.

TECHNICAL SKILLS

Background	Astronomy & Astrophysics (Statistical Analysis, Computational Pipeline, **Big Data** Cataloging)
Programming	**Python** (PyTorch, Pandas, Numpy, Scipy, Matplotlib, Astropy), R, SQL, Julia, IBM Granite
Platforms	**Jupyter Notebook**, Pluto Notebook, GitHub, LaTeX
Modeling	**Machine Learning** | Computer Vision, Image Classification, Human-In-The-Loop (HITL) Training Multi-dimensional **Signal Processing** | Gaussian Kernel Fitting, Stochastic Sampling Numerical Optimization | Markov Chain Monte Carlo (MCMC) algorithm, Bayesian modeling