Jongsu **Kim**

AI Research Engineer · Data Scientist

Gangseo-gu, Seoul, Republic of Korea

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Professional Experience

LG CNS
Seoul, S.Korea

AI Professional (Principle Researcher)
October 2021 - Present

- Focused on multifaceted problem-solving to address diverse and complex challenges across various topics
- Refined LLM training data and reduced training costs through a data-centric approach
- Controlled false alarms by implementing anomaly detection tailored for digital transformation using limited factory equipment and vibration data
- Managed a project to enhance the performance of unsupervised learning vision inspection models for detecting new defects
- Improved system stability by leveraging AWS metrics for data-driven anomaly detection and false alarm control
- Developed and deployed an end-to-end anomaly detection solution in a production environment

School of Mathematical Computing, Yonsei University
Seoul, S.Korea

Ph.D. Student
September 2011 - August 2021

- Particulate Matter (PM) forecasting by deep learning methods for time series forecasting (2018-2021)
- Modeling and simulation of finite-size particles in homogeneous isotropic turbulence using psuedo-spectral methods and immersed boundary methods (2015-2018)
- Modeling and simulation of finite-size droplets in laminar flows with gravity field using level set methods (2011-2015)
- Communicate to support laboratory colleagues who was struggling with computer science-related problems such as algorithms, debugging, and so on. The process was then documented so that the next time the team encountered the same situation, they could follow a similar procedure.
- Programming knowledge (mainly Julia, C++, Fortran)
- Create web pages for multiple purposes in the department, such as conference, introduction pages, and so on.
- Administrator of laboratory server (cluster with 30 nodes)

Education

Yonsei University
Seoul, South Korea

Ph.D. in Computational Science and Engineering-Mechanical/Electrical Engineering
September 2011 - August 2021

Yonsei University
Seoul, South Korea

BSc in Atomspheric Science
March 2007 - August 2011

Yonsei University
Seoul, South Korea

BSE in Computer Science
March 2007 - August 2011

Publications

Deep Particulate Matter Forecasting Model Using Correntropy-Induced Loss

Jongsu Kim and Changhoon Lee

Journal of Mechanical Science and Technology, 35.9 (2021): 4045-4063

https://doi.org/10.1007/s12206-021-0817-4

Path instability of a spheroidal bubble in isotropic turbulence

Gihun Shim, Jongsu Kim, and Changhoon Lee

Physical Review Fluids, 6.7 (2021): 073603

https://doi.org/10.1103/PhysRevFluids.6.073603

Awards

2021 JMST Second Best Paper Award
Journal of Mechanical Science and Technology   *2022. 11.*

Personal Projects

copier-modern-ml
https://github.com/appleparan/copier-modern-ml   *2024. 08.*
- Opinionated Python template for machine learning project with modern workflows made with copier
- copier를 사용하여 모던 툴링 기반 머신러닝용 프로젝트 템플릿 셋업 도구
- uv를 사용한 프로젝트 셋업
- mkdocs-material를 사용한 문서화
- GitHub Actions를 사용한 CI/CD

Presentations

머신러닝 기반의 미세먼지 장기 예측 모델 개발
Jongsu Kim and Changhoon Lee
2019 KSME Annual Meeting 2019

Predicting Concentration of Atmospheric Aerosol Particle using Machine Learning Technique
Jongsu Kim and Changhoon Lee
2019 Korean Society for Computational Science and Engineering Annual Meeting 2019

The numerical investigation on collision between two droplets within effects of gravity force
Jongsu Kim and Changhoon Lee
2014 The 8th National Congress On Fluid Engineering

중력장 내에서의 두 액적 충돌에 관한 수치 시뮬레이션에 관한 연구
Jongsu Kim and Changhoon Lee
2014 KSME Annual Meeting 2014

중력 하에서의 액적 충돌 시뮬레이션
Jongsu Kim and Changhoon Lee
2012 KSME Annual Meeting 2012

Skills

Machine Learning Frameworks	PyTorch, Tensorflow, Keras, Flux.jl
Programming Languages	Python, Julia, C++, Fortran, MATLAB, LaTeX, Javascript, TypeScript
Development Tools	Visual Studio Code, Git, Github Actions, Vim
Mathematics	Numerical Analysis, Statistics, Partial Differential Equation
Fluid Mechanics	Computational Fluid Dynamics, Turbulence Modeling, Immersed Boundary Method
Server Engineering	Linux, High Performance Computing, Docker, Docker Compose, Cloud Computing (AWS, GCP)

Presentations

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Language Skills

English
Intermediate
- TOEIC 875 (2021. 01.)
- OPIc IH(Intermediate High) (2021. 09.)

Korean
Native

Open-Source Contributions

cloneofsimo/ezmup	PR#1
omnitool-ai/omnitool	PR#1
jiffyclub/palettable	PR#54, PR#55, PR#58
Homebrew/homebrew-core	PR#93097
Impute.jl	ISSUE#58, ISSUE#61, PR#54
LAMPSPUC/StateSpaceModels.jl	ISSUE#143
optuna/optuna	ISSUE#2011
bokeh/bokeh	ISSUE#10172
JuliaGPU/CuArrays.jl	ISSUE#346
minmul117/vscode-sublette	ISSUE#9, PR#6, PR#18
FluxML/Flux.jl	ISSUE#930
@types/cytoscape	PR#42293
@types/mathjs	PR#30211, PR#32117
capajon/r6maps	PR#27, PR#40, PR#59, PR#63
juliakorea/doc	PR#11, PR#12, PR#16, PR#20, PR#27, PR#28, PR#51, PR#54
jacobwilliams/json-fortran	ISSUE#152