Sangwoo Hong

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Education & Experience

Konkuk University   *Seoul, Korea*
Assistant Professor at the Department of Computer Science and Engineering   *Mar. 2025 - present*
- Delivering Tutorial Lectures for Undergraduate Students

Seoul National University   *Seoul, Korea*
Post-doc in Future Talent Education Research Group   *Sep. 2024 - Feb. 2025*
- Delivering Tutorial Lectures for Undergraduate Students

Seoul National University   *Seoul, Korea*
Ph.D. in Electrical and Computer Engineering   *Mar. 2020 - Aug. 2024*
- Cognitive Machine Learning Lab (Advisor: Prof. Jungwoo Lee)

Seoul National University   *Seoul, Korea*
B.S. in Electrical and Computer Engineering   *Mar. 2014 - Feb. 2024*
- Advisor: Prof. Sunghyun Choi

Research Interests

My Research interest lies in constructing ***Trustworthy AI***, focusing on key aspects such as

Privacy	Data Privacy, Privacy-preserving Generative Models
Security	Verifiable Computing, Defending Adversarial Attack
Fairness	Rawlsian Max-Min Fairness, Counterfactual Fairness
Reliability	Distributed Computing, Network Pruning
Explainability	Explainable AI

Publications

Constructing Fair Latent Space for Intersection of Fairness and Explainability   *Accepted @ AAAI'25*
Hyungjoon Joo, Hyeonggeun Han, Sehwan Kim, **Sangwoo Hong**, and Jungwoo Lee
The 39th Annual AAAI Conference on Artificial Intelligence

Prototype-based Explanation for Semantic Gap Reduction with Distributional Embedding   *ACCESS'25*
Hyungjoon Joo, Hyeonggeun Han, **Sangwoo Hong**, Youngseok Yoon, and Jungwoo Lee
IEEE Access

Mitigating Spurious Correlations via Disagreement Probability   *NeurIPS'24*
Hyeonggeun Han, Sehwan Kim, Hyungjun Joo, **Sangwoo Hong**, and Jungwoo Lee
Conference on Neural Information Processing Systems

Learning Dual Hierarchical Representation for 3D Surface Reconstruction   *ACCV'24*
Jiyoon Shin, Youngwook Kim, **Sangwoo Hong**, and Jungwoo Lee
Asian Conference on Computer Vision

Group-wise Verifiable Coded Computing under Byzantine Attacks and Stragglers   *TIFS'24*
Sangwoo Hong, Heecheol Yang, Youngseok Yoon, and Jungwoo Lee
IEEE Transactions on Information Forensics and Security (JCR: 6.39%)

NeRFlex: Flexible Neural Radiance Fields with Diffeomorphic Deformation   *ACCESS'24*
Jiyoon Shin, **Sangwoo Hong**, and Jungwoo Lee
IEEE Access

GBMix: Enhancing Fairness by Group-Balanced Mixup   *ACCESS'24*
Sangwoo Hong, Youngseok Yoon, Hyungjun Joo, and Jungwoo Lee
IEEE Access

Straggler-Exploiting Fully Private Distributed Matrix Multiplication With Chebyshev Polynomials

TCOM '23

Sangwoo Hong, Heecheol Yang, Youngseok Yoon, and Jungwoo Lee

IEEE Transactions on Communications (JCR: 7.53%)

Hierarchical Group Testing for Byzantine Attack Identification in Distributed Matrix Multiplication

JSAC '22

Sangwoo Hong, Heecheol Yang, and Jungwoo Lee

IEEE Journal on Selected Areas in Communications (JCR: 1.6%)

Chebyshev Polynomial Codes: Task Entanglement-based Coding for Distributed Matrix Multiplication

ICML '21

Sangwoo Hong, Heecheol Yang, Youngseok Yoon, and Jungwoo Lee

Proceedings of the 38th International Conference on Machine Learning

Byzantine attack identification in distributed matrix multiplication via locally testable codes

ISIT '22

Sangwoo Hong, Heecheol Yang, and Jungwoo Lee

IEEE International Symposium on Information Theory

Securely Straggler-Exploiting Coded Computation for Distributed Matrix Multiplication

ACCESS '21

Heecheol Yang, Sangwoo Hong, and Jungwoo Lee

IEEE Access

Private and secure coded computation in straggler-exploiting distributed matrix multiplication

ISIT '21

Heecheol Yang, Sangwoo Hong, and Jungwoo Lee

IEEE International Symposium on Information Theory

Squeezed Polynomial Codes: Communication-Efficient Coded Computation in Straggler-Exploiting Distributed Matrix Multiplication

ACCESS '20

Sangwoo Hong, Heecheol Yang, and Jungwoo Lee

IEEE Access

Preprints

Finding Bias with Pruning: Towards Sparse and Debiased Neural Networks

Under Review @ TIP

Sangwoo Hong, Sehwan Kim, Hyungjun Joo, Hyeonggeun Han, Jiyoon Shin, Yoav Wald, and Jungwoo Lee

IEEE Transactions on Image Processing

Mix from Failure: Confusion-Pairing Mixup for Long-Tailed Recognition

Preprint

Youngseok Yoon, Sangwoo Hong, Hyungjoon Joo, Yao Qin, Haewon Jeong, and Jungwoo Lee

ArXiv Preprint

Work Experiences

Samsung Network

Suwan, Korea

Research Intern: Samsung Network Business

Jun. 2019 - Aug. 2019

• Developing AI models for optimizing the placement of wireless relay stations

Professional Services

Reviewer for Journals and Conferences

CVPR, ICCV, ECCV, TNNLS, TIFS, TCOM, ICC, ISIT, ACCESS

Skills

Software Skills C++, Python, Java, PyTorch, Tensorflow, Diffusers

Tools GIT, MPI, SLURM