Yunseob Hwang

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Education

Pohang University of Science and Technology (POSTECH) Pohang, Gyeongbuk, Korea
M.S. in Mechanical Engineering, GPA: 3.98/4.30 2019–2021

- Dissertation: Convolutional Neural Network Based Small Bowel Lesion Detection in Capsule Endoscopy
- Advisor: Prof. Seungchul Lee

Chungnam National University (CNU) Deajeon, Korea
B.S. in Radio Science and Engineering, GPA: 4.17/4.50 2011–2019

Research Experience

AI-based Fault Diagnosis to Manufacturing and Heathcare
M.S. student at Industrial Artificial Intelligence (iAI) Lab., POSTECH 2019–2021

Projects

Deep Learning-based Smart Capsule Endoscopy Reading System Development
Collaborated with Division of Gastroenterology, The Catholic University of Korea 2019.04–2021.01

Development of IIoT- and AI-based Sustainable Smart Manufacturing Model
Collaborated with Manufacturing Innovation Network Lab. in UW-Madison 2020.02–2020.12

- Dispatched to Wisconsin, USA, from Feb 2020 to June 2020

AI-based Dysphasia Pathological Voice Detection Model Development
Collaborated with Department of Rehabilitation Medicine, The Catholic University of Korea 2019.06–2019.12

Deep Learning-based Stem Cell Functional Classification Model Development
Collaborated with Department of Otorhinolaryngology, The Catholic University of Korea 2019.06–2019.12

Publications

International Journals

1. **Yunseob Hwang**†, Han Hee Lee†, Chunghyun Park, Bayu Adhi Tama, Jin Su Kim, Dae Young Cheung, Woo Chul Chung, Young-Seok Cho, Kang-Moon Lee, Myung-Gyu Choi, Seungchul Lee, and Bo-In Lee, "Improved Classification and Localization Approach to Small Bowel Capsule Endoscopy Using Convolutional Neural Network", Digestive Endoscopy, 2020.

2. Andrew Glaeser, Vignesh Selvaraj, Sooyoung Lee, **Yunseob Hwang**, Kangsan Lee, Namjeong Lee, Seungchul Lee, and Sangkee Min, "Applications of Deep Learning for Fault Detection in Industrial Cold Forging", International Journal of Production Research, 2021.

International Conferences

1. Soo Young Lee, **Yunseob Hwang** and Seungchul Lee, "Frequency-driven Convolutional Neural Network for Enhancing Noise-robustness of Bearing Fault Detection", 49th International Congress and Exposition on Noise Control Engineering: Inter-Noise 2020, 2020.

2. Andrew Glaeser, Vignesh Selvaraj, Kangsan Lee, Namjeong Lee, **Yunseob Hwang**, Sooyoung Lee, Seungchul Lee, and Sangkee Min, "Remote Machine Mode Detection in Cold Forging Using Vibration Signal", Procedia Manufacturing 48, 2020.

Domestic Conferences

1. **Yunseob Hwang**, Han Hee Lee, Seungchul Le, and Bo-In Lee, "Explainable Deep Learning-based Smart Diagnostics for Capsule Endoscopy Images", The Korean Society of Mechanical Engineers 2019, 2019.

2. Juhyeong Jeon, **Yunseob Hwang**, Iljoo Jeong, Yeonjae Han, Sun Im, and Seungchul Lee, "Pathological Voice Diagnostics using Deep Learning", The Korean Society for Noise and Vibration Engineering 2019, 2019.

Skills

- Excellent organization skills for problem-solving, and trained conversation skills through co-works with other experts not in data science fields
- Faimliar with feature engineering methods for time-series data: time-domain and frequency-domain features, short-time Fourier transform, wavelet transform, ...
- Adopting and implementing DL algorithms according to problems: CNNs and CAMs for classification, GANs for high-resolution image synthesis, and CAE for anomaly detection
- Programming and debugging skills with Python and DL frameworks (Pytorch, Tensorflow, Keras)
- Code modularization as DL pipeline from data configuration to evaluation for CNN-based fault diagnostic system

Additional Activities

- Tutorial "Deep Learning", Samsung Heavy Industries (SHI), Pangyo, 2020.01