YEONGTAK OH

Department of Mechanical Engineering
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PERSONAL DATA

Birth: Republic of Korea *Dec 19th 1996*
Nationality : Korean
Language : First Language Korean, Fluent in English
Military Service Status : Unfulfilled
Homepage: https://oyt9306.github.io/

EDUCATION

Seoul National University *Sep 2018 - Current*
Department of Mechanical Engineering GPA: 3.77/4.3
Thesis : Motion-Adaptive Fault Detection Method of Industrial Robot Gearboxes(Undergoing)
Master of Mechanical Engineering
Advisor : Prof. Byeng D.Youn

Seoul National University *Mar 2014 - Aug 2018*
Department of Mechanical and Aerospace Engineering GPA: 3.34/4.3
Thesis : Wave Localization and Energy Harvesting Using a Defect Mode of Elastic Metamaterials in Low Frequency Range
Bachelor of Mechanical Aerospace Engineering
Advisor : Prof. Byeng D.Youn

RESEARCH EXPERIENCE

Industrial AI) Deep learning, Signal Processing, Big-data Analysis
Deep Learning : Domain Adaptation, Unsupervised Reconstruction, Anomaly Detection, XAI, Generative Adversarial Network
Signal Processing : Noise Reduction, Signal Smoothing
Big-data Analysis : Correlation Analysis of Multi-Channel Time Series Data
Applications : Industrial Robot, Planetary Gearbox, Thermal Power Plant Boiler

RESEARCH INTERESTS

Deep learning: Graph Neural Network, Self-Supervised Learning, Meta Learning, Domain Adaptation, Anomaly Detection, Incremental Learning
Robotics: Self-Updating Map, Robot Path Control, Optimization, SLAM
Applications: Computer Vision, Robotics, Machinery

DOMESTIC JOURNAL

1. B. D. Youn, H. Kim, J. Ko, J. Park, H. Kong, **Y. Oh**, Domain knowledge-based data preprocessing technology for industrial applications of deep learning, The Korean Society of Mechanical Engineers(KSME), Vol.59(8), p.34-38

INTERNATIONAL CONFERENCE

1. **Y. Oh**, Y. Kim, K. Na, B. D. Youn, A Novel Fault Detection Method of Industrial Robots Using Motor Current Signals via Convolutional Neural Network (CNN), Jeju, Republic of Korea, International Conference of Materials and Reliability(ICMR), 2019, oral, *Best Paper Award*

DOMESTIC CONFERENCE

1. **Y. Oh**, Y. Kim. K. Na, B. D. Youn, Fault Location Estimation Method of 6-DOF Robot Joints Using One-Class Anomaly Detection, Seoul, Korea Society for Prognostics and Health Management(KSPHM), 2020, oral(Expected)
2. **Y. Oh**, Y. Kim. K. Na, B. D. Youn, Deep-Learning based Fault Detection Method of Industrial Robot Gearboxes, Souel, Korea Robotics Society Annual Conference(KRoC), 2020, oral
3. H. Kim, **Y. Oh**, K. Na, B. D. Youn, A Novel Real-Time Boiler Tube Leakage Detection Method Using ConvLSTM Networks based on Sliding Window Correlation Matrix, Jeju, The Korean Society of Mechanical Engineers(KSME), 2019, oral
4. **Y.Oh**, K. Na, H. Kim, B. D. Youn, Unsupervised Learning-Based Thermal Power Plant Boiler Tube Leakage Detection Method, Daejeon, Intelligent Digital Power Plant Conference, 2019, oral
5. **Y. Oh**, Y. Kim. K. Na, B. D. Youn, Convolutional Neural Network(CNN) based Boiler Tube Leakage Detection in a Power Plant, Korea Society for Prognostics and Health Management(KSPHM), Seoul, 2019, poster, *Best Poster Award*

EXPERIENCE

Research Intern at System Risk and Health Monitoring Laboratory *June 2018- Sep 2018*
Location : Seoul National University
Participated in Projects on Deep Learning based Fault Diagnosis
Deep Learning: Deep Learning Theory and XAI Research
Prognostic and Health Management: Deep Learning based Fault Diagnosis
Advisor : Prof. Byeng D. Youn

PROJECTS

AI based Diagnosis and Prognostics for Thermal Power Plant *July 2018- Current*
Propose Deep Learning-based Anomaly Detection of Thermal Power Plant System
Sliding Window based Correlation Analysis
Integrate Deep Learning Solution System with UI/DB System

AWARDS AND HONORS

Best Poster Awards: KSPHM, Domestic Conference *2019 Fall*
Best Paper Awards: ICMR, International Conference *2019 Fall*
1st Winner in Course Work: Melody Extraction with Pitch Detection via CNN-LSTM *2019 Fall*
Best Project Awards: Advanced Composite Material based on Seashell Structures *2017 Fall*

PATENTS

1. **Y. Oh**, inventor, applicant with KEPCO, Boiler Pipe Monitoring System and Method
Republic of Korea - Application No.10-2019-0141165.

TEACHING ASSISTANT

Solid Mechanics, For Undergraduate *2020 Spring*
Location : Seoul National University
Advisor : Prof. Byeng D. Youn

SKILLS

Programming Languages
Python(Keras, Tensorflow), MATLAB
Languages
English (TEPS: 664/990)

SCHOLARSHIPS

Seoul National University Alumni Association Scholarship, full tuition *2017 Fall - Current*

OTHERS

Seminar

SWC(Sliding Window Correlation)-CNN Algorithm *Jan 2020*
Location : Seoul National University
Knowledge Sharing with KEPCO

Talks

Industrial Robot Fault Diagnosis-Domain Adaptive Convolutional Neural Network *Sep 2019*
Location : Seoul National University
Industrial AI Concert