HYEONSOO MOON

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EDUCATION

VANDERBILT UNIVERSITY   **Nashville, TN**
M.S in Electrical Engineering, May 2018
- Research Interests: Deep Learning(Specifically Image based), Computer Vision, Medical Imaging,
- Course work: Quantitative medical image analysis, Computer vision, Embedded system, Image processing, Intelligent System & Robotics, Data analysis

KYUNGHEE UNIVERSITY   **Suwon, Kyunggi-Do**
B.S in Computer Science, June 2016
- Research Interests: Computer Vision, Image Processing
- Thesis: Auto optimizing camera with Image processing

EXPERIENCE

GE Appliances Korea   **Seongnam, Korea**
Mar, 2021 -   *AI Software Engineer*
Developing AI applications on appliances & IP submissions
- Fire Detection on cooktop / Washer turnover performance measure with feature matching / Dye-transferable clothes detection / Appliance voice control / Code defect prediction for a push commit / Food classification & auto timer setup
- AI model implementation on edge devices
  Android / Jetson-nano / mobile application with light weight models

LG CNS, Inc   **Seoul, Korea**
Sep, 2018 -   *AI Research Engineer*
Mar, 2021   Developed and Integrated AI solutions
- Object Detection / Classification, Surveillance Camera, Smart Convenience Store. Researching and implementing State-of-the-Art Deep learning algorithms.

MASI LAB, VANDERBILT UNIVERSITY   **Nashville, TN**
Aug, 2017 -   *Master Thesis Research*
May, 2015   Automated End-to-End Pipeline for Clinical trial segmentation – containerization with Docker. Developed an automated pipeline for deep learning based spleen segmentation in MASI Lab.
- Source URL : (https://github.com/moonh1/DeepSpleen)

GRIDWIZ, SMARTGRID COMPANY   **Sungnam, Korea**
Jun-Aug, 2014   *Internship, Development team*
- Developed Serial, TCP, UDP communicator programs; UI design with Java.
- Released to KIA Motors as prototype.
- Team project experience with Software Development Life Cycle (SDLC).

PROJECTS

Nov- , 2021   *Food classification in an oven*
- Developed the model to classify a type of the food and automatically setup the oven.
- Developed data synthesizing method to train with few training set and acquire a high performance.

Jun-Dec, 2021   *Code defect prediction*
- Implemented AI model to predict bug risk of the commits.
- Integrated with Jenkins to give a feedback about commits to the developers.

Apr-Jul, 2021   *Dye-transferable cloth detection on top-load washer*
- Develop a method to detect whether dye-transferable clothes exist with an white colored laundry.
- US patent filed

May-Jul, 2021   *Turn over detection on the washer*
- Developed turnover performance measurement method with feature matching algorithm.
- Calculated the difference between good and bad turnover cases to control washer response actions.
- US patent filed.

Mar-May, 2021   *Fire Detection on edge devices*
- Implemeted light fire detection model on the android devices that can locate fire at a real-time and send the alarm with BLE to control the devices.

Jan-Dec, 2020   *Product Detection & Classification (Logistics)*
- Researched SOTA Classification, Metric Learning, Feature embedding algorithms and implemting them into new logistics business.
- Developed product detection & classification solution with the automated conveyer system in Logistics warehouse.

Apr-Dec, 2019   *Smart Surveillance CCTV*
- Imported AI model with solutions for construction-site risk detection
- Developed light & fast model for multi-camera performance.
- Developed real-time Surveillance camera that can detect human actions and fire/smoke
- PoC with Lotte constuction.

Apr-Jun, 2019   *Smart Tolling system*
- Developed care model classification model that can classify about 500 models.
- PoC with Korea expressway corporation.

Sep-Dec, 2018   *Smart Convenience store*
- Generated labeled dataset structure
- Implemeted and finetuned object detection model
- http://www.koreaherald.com/view.php?ud=20180917000616

PAPERS

- Acceleration of spleen segmentation with end-to-end deep learning method and automated pipeline .
  2019.02 Computers in Biology and Medicine, Springer
- Splenomegaly Segmentation on Multi-modal MRI using Deep Convolutional Networks.
  2018.11 IEEE Transactions in Medical Imaging
- Improving splenomegaly segmentation by learning from heterogeneous multi-source labels.
  2019.03 SPIE

PATENTS

- Top load washer color detection by using camera + AI (To Be Filed)
- Turn over rate evaluation by using camera and AI (To Be Filed)
- Adaptive rinse cycle based on excessive detergent using a camera + AI. (2021 May)
- Auto detergent ensuring feature on washer using a camera + AI (2021 Apr)

TECHNICAL SKILLS

- **Programming Languages:** Python, Java Android, C++
- **Based OS:** Ubuntu, Windows, Mac
- **Applications:** Docker, Git
- **Frameworks:** Tensorflow, Pytorch

CERTIFICATES

- Tensorflow Developer Certificate (Google)
- Google Cloud Platform Big Data and Machine Learning Fundamentals

ADDITIONAL

Jan, 11 – Oct 12	**Military Service, Republic of Korea Army**	**Pocheon, Korea**
May-Nov, 2014	**Volunteer:** Children Mentor at *Good Neighbors, Korea*	**Seoul, Korea**
	Languages: Native in Korean, Fluent in English	
Aug-Sep, 2021.	**Mentor**: software high school AI portfolio competition mentor	**Seoul, Korea**