Dr. HEUNA KIM

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WORKING EXPERIENCE Dec. 2016 –

Deep Learning Researcher, Haezoom Europe GmbH. Jan. 2018 – current

Wind Power Forecasting, in progress
- Using statistical models (adaptive fuzzy Neural Network, Kalman Filter for bias correction, ARMA, Ensemble) and physical models (Computational Fluid Dynamics, Multi-Body Dynamics)

3D-Building Reconstruction Prototype using Satellite Images for Shadow Simulation, in progress
- Used Computer Vision techniques (Super Resolution, Stereo Vision, Deblurring, Depth Estimation)
- Tools: Botos and SNAP for Sentinel and Landsat, QGIS, Imagemagick, Raster

Cloud Detection and Cloud Motion Estimation
- used Optical Flow, Transmittance Simulator (RTTOV, 6S), Himawari Satellite

Deep Learning Researcher, Twenty Billion Neurons GmbH. Dec.2016 – Nov.2017

Realtime Gesture Recognition Demo in Tensorflow:
- made the online RNN model working (from 5% to 65%, finally 85% with more data)

Neural Network for Video Captioning and Temporal Action Localization by collaborating with Toronto team using Tensorflow

Realtime Video Understanding Demo Infrastructure in Python:
- implemented to support camera streaming, network communication, multiprocessing
- Camera module: OpenCV, PiCamera, PyGame, ImageIO (e.g., for RaspberryPi, Jetson)
- Other tools: Multiprocessing, ZMQ, Socket, PyBuilder, Travis CI

SELECTED PUBLICATION

See my webpage above for the publication including **7 reviewed** and **3 weakly reviewed** papers.

Congruence Testing Algorithms *(Ph.D. Thesis)*
- Published in SoCG 2016. Created an optimal running-time geometric algorithm in 4-space for a 30 years-old open problem.

Manifold Learning for Regression *(Bachelor Research)*
- Published in Expert Systems with Applications. Created transductive process to improve robustness for Bayesian regression with dimension reduction (implemented in Matlab).

Video Dataset for Deep Learning *(Collaboration at TwentyBN GmbH)*
- Published in ICCV 2017. Created Video dataset by crowd sourcing and contributed to classification and captioning to analyze common sense for the dataset.

SKILLS

Programming:	Python (proficient), Java (intermediate), Haskell (intermediate), R (intermediate), C++/C (university projects)
Framework:	Tensorflow, PyTorch, OpenCV, Hadoop
Others:	Linux, Vim, Git, SQL, CUDA, cuDNN, JetPack, TDD, Agile
Language:	English (IBT 105/120, Nov. 2012), German (C1), Korean (Native).

EDUCATION

Freie Universität Berlin (FU Berlin), Germany — Magna Cum Laude
Ph.D. Mathematics and Computer Science — Jun. 2013 – Jun. 2016

- Scholarship from German Research Foundation (Methods for Discrete Structures)

Korea Advanced Institute of Science and Technology (KAIST), S. Korea — GPA: 4.25/4.30
M.S. Computer Science — Feb. 2011 – Feb. 2013

- Best Poster Award for Master Thesis
- National Research Scholarship from Korea Scholarship Fund

Pohang University of Science and Technology (POSTECH), S. Korea — GPA: 3.57/4.30
B.S. Mathematics, minor in Physics — Mar. 2004 – Feb. 2008

- Honorable Scholarship from the President of Korea
- Honorable Scholarship from Korea Foundation for Advanced Studies
- Silver Medal from National Collegiate Programming Competition
- Winner of Software Security Team Competition between POSTECH & KAIST