Seungtae Nam

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Research Interests

- Deep-learning-based computer vision.
- Object detection and semantic segmentation.
- Understanding and visualizing deep learning models.

Education

Mar., 2014 ~ Aug., 2021 (expected) — **Kyung Hee University**, Seoul, Korea
B.B.A. candidate in Hospitality Management
B.E. candidate in Software Convergence
GPA: 4.23 / 4.5

Jan., 2018 ~ May., 2018 — **Nanyang Technological University**, Singapore
School of Business (exchange program)

Awards & Honors

Spring, 2019 — **Academic Scholarship**, Kyung Hee University

Spring, 2018 — **Academic Scholarship**, Kyung Hee University

Fall, 2014 — **Exemplary Scholarship**, Kyung Hee University

Publications

[1] **Seungtae Nam**, and Daeho Lee, "Improvement of object detector using multi-scale RoI pooling and feature pyramid network", *Journal of Electronic Imaging (JEI)*. [under review]

Projects

Improving Faster R-CNN with Feature Pyramid Network

Sep., 2020 ~ Jan., 2021

Software Convergence Capstone Design

: Proposed an efficient method to apply Feature Pyramid Network (FPN) to VGG16-based Faster R-CNN. Experiments were conducted to investigate how FPN could improve the detection performance on small objects. Features of FPN and those of Faster R-CNN were visualized with Grad-CAM to observe the differences between them. [source]

Improving LeNet-5 with Batch Normalization

Mar., 2020 ~ Aug., 2020

Data Analysis Capstone Design

: Implemented LeNet-5 from scratch in C++ to learn the basics of deep learning in great detail. Additionally, hyperbolic tangent and mean squared error in LeNet-5 were replaced with rectifier linear unit and cross-entropy, respectively, to speed up convergence. Batch normalization was adopted to alleviate the internal covariate shift. [source]

Classification of Beer Using Agglomerative Hierarchical Clustering

Jan., 2020 ~ Aug., 2020

Graduate Thesis (Hospitality Management)

: Proposed a method to classify beer according to five characteristics: color, aroma, body, palate, and finish. Hundreds of beers were evaluated based on the five characteristics. Then, the beers were grouped by Jaccard similarity index.

C++ Implementation of Machine Learning Algorithms

Dec., 2019 ~ Aug., 2020

Personal Project

: Implemented various machine learning algorithms from scratch in C++ to learn them in great detail. The algorithms include decision trees, naïve Bayes, k-nearest neighbors, k-means, Gaussian mixture model, principal component analysis, and ordinary least squares regression. [source]

Faster Page Dewarp

Aug., 2019 ~ Dec., 2019

Design Thinking

: A faster version of the cubic sheet model, a text line rectification algorithm. [source]

Qualifications

- **TOEIC** (955)

Academic Skills (courses taken)

- Mathematics
  - Linear Algebra, Calculus, Differential Equations
  - Probability and Random Variables, Applied Statistics
- Computer Science
  - Algorithm Analysis, Data Structures
  - Object-oriented Programming, Python Programming
- Data Science
  - Numerical Analysis Programming
  - Data Mining, Process Mining
  - Financial Engineering, Financial Data Analysis

Technical Skills

- Deep Learning
  - Frameworks: PyTorch, Keras
  - Software: Docker
- Machine Learning: Numpy, Scipy, Scikit-learn, Eigen
- Programming Languages: Python, C++, R
- Server Management: Linux (Ubuntu)
- Vision: OpenCV