# Sungwon Lyu

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*lyusungwon.github.io*

## EDUCATION

**Seoul National University,** Seoul, Korea *Aug 2017 – Aug 2019*
• M.S. in Industrial Engineering, Datamining Lab. (GPA 3.91 / 4.2)

**Korea University,** Seoul, Korea *Mar 2010 – Jul 2017*
• B.A. in Business, History, and Statistics (GPA 4.11 / 4.5)

**School of Business and Economics at Maastricht University,** Maastricht, Netherlands *Jan – June 2015*
• Exchange Student

**Daewon Foreign Language High School,** Seoul, Korea *Mar 2007 – Feb 2010*

## WORK EXPERIENCE

**Internship at Naver Corporation, ClovaAI** *Mar 2019 – Jul 2019*
• Supported subsequent research of "Answerer in Questioner's Mind: Information Theoretic Approach to Goal-Oriented Visual Dialog"
• Established data pipeline and developed NLU model in DUET TF, conversational AI for reservation

## PUBLICATIONS

**Multimodal Self-Attention Network for Visual Reasoning**
• *Sungwon Lyu*, Master Thesis

**SARN: Relational Reasoning through Sequential Attention**
• Jinwon An, *Sungwon Lyu*, Sungzoon Cho, 2018 NIPS Workshop on Visually-Grounded Interaction and Language (ViGIL) / Relational Representation Learning, December 8, 2018, Montréal, Canada

**Dynamic Vehicle Traffic Control Using Deep Reinforcement Learning in Automated Material Handling System"**
• Younkook Kang, *Sungwon Lyu*, Jeeyung Kim, Bongjoon Park, Sungzoon Cho, *AAAI-19* Student Abstract and Poster Program, January 27 – February 1, 2019, Honolulu, Hawaii, USA

**Distributed Streaming Text Embedding Method**
• *Sungwon Lyu*, Jeeyung Kim, Noori Kim, Jihoon Lee, Sungzoon Cho, Korea Data Mining Society 2018 Fall Conference, Special Session

**Clustering National Security Threats Using Two-Step Disentanglement Method on Stock Prices**
• Minh Choi, *Sungwon Lyu*, Sungzoon Cho, Korea Data Mining Society 2018 Fall Conference, Special Session Best Paper

## COMPETITIONS

**8th rank on 2019 CVPR GQA Challenge** *18 May 2019*
• Participated as an individual team

**First Award & Best Demo Award @ 2018 Digital Health Hackathon** *27-28 Oct 2018*
• Presented neural hear aid with mobile deployment of Deep Complex Unet

## INDUSTRY PROJECTS

**Reinforcement-learning based Overhead Hoist Transfer Optimization with Samsung Semi-conductor** *Jan – Dec 2018*
• Trained reinforcement agent for dynamic routing of overhead hoist transfer

## PERSONAL PROJECTS: github.com/lyusungwon

**Deep Learning Paper Summary**
• Summarized 150+ deep learning papers on personal blog(lyusungwon.github.io)

**Visual Question Answering Benchmarks**
• Established pipeline to compare various visual reasoning and visual question answering models on Clevr / VQA 2.0 dataset
• Visual Question Answering Models: Relational Network, Sequential Attention Relational Network, FiLM, MLB, MRN, SAN

**Generative Models Implementation**
• Implemented Adversarial Auto Encoder, Beta-VAE, Convolutional VAE, DCGAN, GAN, Introspective VAE, MADE, VAE, VAE with Inverse Autoregressive Flow, VAE with Normalizing Flow, Vector Quantized VAE, Wasserstein GAN

**Alphachu**
• Established RL environment for the game "Pikachu Volleyball"
• Trained APE-X DQN agent to win against computer (https://youtu.be/vSkLegIUD98)

## SKILLS

**Language Skills:** Native Korean, Fluent English**,** Elementary Chinese
**Computer Skills:** Advanced Python, Basic Swift, Basic Java, Basic Spark
**Deep Learning Skills:** Advanced PyTorch, Intermediate TensorFlow