Jinyeong Yim

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Areas of specialization

- Natural Language Processing, Artificial Intelligence, Machine Learning, Human-Computer Interaction, Crowdsourcing

EDUCATION

Georgia Institute of Technology, Atlanta, GA — Sep. 2017 – Apr. 2019

- M.S. in Computer Science (Online, specialization in Machine Learning)

University of Michigan, Ann Arbor, MI — Sep. 2014 – Dec. 2016

- M.S.E. in Mechanical Engineering (GPA: 3.7/4.0, Robotics and Controls) (Sep. 2014 – Dec. 2015)
  - Entered as a direct Ph.D student in Mechanical Engineering
- Worked at the Computer Science Department (CroMa Lab – Crowdsourcing) (Aug. 2015 – Dec. 2016)

Yonsei University, Seoul, South Korea — Mar. 2007 – Feb. 2014

- B.S. in Mechanical Engineering (GPA: 4.16/4.3, Rank: 1/173, *summa cum laude*)
- Exchange student to **UC San Diego** for one academic year (GPA: 4.0/4.0, provost honors) (Sep. 2012 – Jun. 2013)

Seoul Science High School, Seoul, South Korea — Mar. 2005 – Feb. 2007

WORK EXPERIENCE

NAVER Corp., South Korea — Mar. 2018 – Present

- AI Research Engineer
  - Researched on various NLP topics: Semantic parsing, Crowdsourcing, Paraphrase generation, Document QA, etc.
  - Developed the baseball QA system using structured data (SQL query generation)
  - Researched on OCR text parsing for visually-rich documents
  - Researched on improving the OCR parser annotation pipeline

SK Holdings Co., South Korea — Mar. 2017 – Feb. 2018

- AI Platform Engineer
  - Researched on augmentation of vocabulary and relations using knowledge base
  - Researched on speech recognition enhancement using GAN
  - Conducted Korean-porting of IBM Watson APIs

Bosch Research and Technology Center, Pittsburgh, PA, USA — May. 2016 – Aug. 2016

- Intern (Real-time crowdsourcing systems for video analytics intern)
  - Developed a real-time crowd-powered human-intelligent sensor system using multiple cameras
  - Developed an image annotation tool for online crowds using Amazon Mechanical Turk

Bain & Company, Seoul, South Korea — Mar. 2014 – Apr. 2014

- Intern (Research Assistant)
  - Conducted a market analysis for a new business
  - Reviewed M&A/partnership opportunities and interviewed industrial companies

RESEARCH EXPERIENCE

Hallym University Medical Center, South Korea Nov. 2017 – Jul. 2018
- External Researcher
  - Researched on the image analysis of conization in cervical cancer using Convolutional Neural Network

CroMa Lab, University of Michigan, Ann Arbor, MI, USA Aug. 2015 – Dec. 2016
- Research Assistant (GSRA) in the computer science department
  - Developed a real-time crowd-powered system for annotating objects in 3-D point cloud scenes
  - Upgraded a task-parallelized and crowd-powered video coding system

Biomedical Optics & Instrumentation Lab, Yonsei University, South Korea Jun. 2012 – Jan. 2014
- Research Intern (Prof. Chulmin Joo)
  - Developed an optical sensor using photothermal effect, "Spectral-domain optical coherence reflectometry for measuring hemoglobin concentration"
  - Developed an image processing algorithm for "Automatic analysis of intravascular OCT images of stent-implanted blood vessels"

Other Research Experience
- Developed a haptic analysis device for virtual tactile sense generation (Prof. Byung-Kwon Min, Yonsei University), 2014
- Constructed mechatronics system for mobile tracking robot, "Design of vibration-driven mobile robots with enhanced mobility" (Prof. Hyunseok Yang, Yonsei University), 2013-2014
- Built the program finding the optimal distribution of agents in 3-D space, "Mobile robotic sensor networks using 3-D Voronoi diagram" (Prof. Jorge Cortes, UC San Diego), 2013
- Developed an image processing algorithm for analyzing features of nanoparticles extracted from TEM images, "Automated detecting and analyzing of nanoparticles in TEM images" (Dr. John Nolan, La Jolla Bioengineering Institute, San Diego), 2013

PUBLICATIONS

Conference papers

[C.5] W. Hwang, H. Lee, **J. Yim**, G. Kim, M. Seo. "Cost-effective End-to-end Information Extraction for Semi-structured Document Images." The 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021)

[C.4] W. Hwang, **J. Yim**, S. Park, S. Yang, and M. Seo. "Spatial Dependency Parsing for Semi-Structured Document Information Extraction." The Joint Conference of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2021)

[C.3] W. Hwang, **J. Yim**, S. Park, and M. Seo. "Syntactic Question Abstraction and Retrieval for Data-Scarce Semantic Parsing." Automated Knowledge Base Construction (AKBC 2020)

[C.2] S. Park, S.-W. Hwang, F. Chen, J. Choo, J.-W. Ha, S. Kim, **J. Yim**. "Paraphrase Diversification using Counterfactual Debiasing." In Proceedings of AAAI Conference on Artificial Intelligence (AAAI 2019)

[C.1] S. Gouravajhala, **J. Yim**, K. Desingh, Y. Huang, O.C. Jenkins, W.S. Lasecki. "EURECA: Enhanced Understanding of Real Environments via Crowd Assistance." In Proceedings of the AAAI Conference on Human Computation (HCOMP 2018)

Workshops and Demos

[W.5] J. Park, E. Ko, D. Han, **J. Yim**, and J. Kim, "Supporting Dynamic Construction of Datasets with Annotator Suggestions." Works-in-progress at the ninth AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2021 WIP)

[W.4] W. Hwang, **J. Yim**, S. Park, and M. Seo, "A Comprehensive Exploration on WikiSQL with Table-Aware Word Contextualization." Workshop on Knowledge Representation & Reasoning Meets Machine Learning at the Conference on Neural Information Processing Systems (NeurIPS 2019 Workshop KR2ML)

[W.3] W. Hwang, S. Kim, M. Seo, **J. Yim**, S. Park, S. Park, J. Lee, B. Lee, H. Lee,"Post-OCR parsing: building simple and robust parser via BIO tagging." Workshop on Document Intelligence at the Conference on Neural Information Processing Systems (NeurIPS 2019 Workshop DI)

[W.2] S. R. Gouravajhala, J. Y. Song, **J. Yim**, R. Fok, Y. Huang, F. Yang, K. Wang, Y. An, and W. S. Lasecki. "Towards Hybrid Intelligence for Robotics." In Collective Intelligence Conference (CI 2017)

[W.1] **J. Yim**. "Towards Human-level Communications of Artificial Intelligence Systems." The Asian Conference on Machine Learning - Workshop on Machine Learning for Artificial Intelligence Platforms (ACML 2017 Workshop)

[D.1] **J. Yim**, W. Leung, J. Jasani, E. Lim, A.M. Henderson, M. Gordon, D. Koutra, J.P. Bigham, S.P. Dow, W.S. Lasecki. "Coding Varied Behavior Types Using the Crowd." In ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW 2016 Demo) → Glance Demo

Journal papers

[J.1] G. Cho, **J. Yim**, Y. Choi, J. Ko, and S.-H. Lee. "Review of machine learning algorithms for diagnosing mental illness." Psychiatry investigation 16, no. 4 (2019): 262.

(Optics) Journal papers

[E.3] H. Kim, S. Song, **J. Yim**, H. O. Kim, C. Joo. "Hemoglobin Assay in anemic patients with a photothermal spectral-domain optical coherence reflectometric sensor." Clinica Chimica Acta, 439 (2015) 71–76

[E.2] S. Song, H. Kim, **J. Yim**, C. Joo, H. O. Kim. "Evaluation of The New Developed Photothermal Spectral Domain Optical Detection Method for Hemoglobin Concentration for Pre-donation Screening In Blood Donors." Vox Sanguinis, 107 (2014) 90-91

[E.1] **J. Yim**, H. Kim, S. Ryu, S. Song, H. O. Kim, K.-A Hyun, H.-I. Jung, C. Joo. "Photothermal spectral-domain optical coherence reflectometry for direct measurement of hemoglobin concentration of erythrocytes." Biosensors and Bioelectronics, 57 (2014) 59–64

COMPETITIONS

- ICDAR 2019 Competition on Post-OCR Text Correction: 1st ranked in both tracks: 1) Detection and 2) Correction of OCR errors (ICDAR: International Conference on Document Analysis and Recognition)

PATENT

- Apparatus and method for diagnosis of cervical diseases using deep learning algorithms
  B. Cho, **J. Yim**, S. Park, K. Son, S. Park, J. Lee - 10-2018-0076467 - Korean Patent, Jul. 2018
- Apparatus and method for measuring concentration of hemoglobin using photothermal effect
  C. Joo, **J. Yim**, H. Kim, S. H. Ryu - US20150260645A1 - Sep. 2015

GRANTS

Received the PhD student scholarship from Jeongsong Cultural Foundation — Sep. 2014 – Dec. 2016
Received the PhD student fellowship from the University of Michigan — Sep. 2014 – Apr. 2015
Received the undergraduate scholarship from Kwanjeong Educational Foundation — Mar. 2008 – Feb. 2014
Received the national science and technology scholarship from Korea Student Aid Foundation — Sep. 2007 – Dec. 2007

SERVICES and ACTIVITIES

Teaching Assistant (Graduate Student Instructor), University of Michigan — Sep. 2015 – Dec. 2015
- ME 240: Dynamics and Vibrations

APCEIU (Asia-Pacific Centre of Education for International Understanding), Seoul, South Korea — Jul. 2014 – Aug. 2014
- Organized programs for foreign visiting school teachers from U.S., U.K., Singapore, and Australia

Young Engineers Honor Society, South Korea — Sep. 2011 – Aug. 2014
- Networked with Korean professionals in science and technology industries (CEOs, professors, retired Ministers, etc.)

Military Service: Republic of Korea, Air Force (Discharged as a sergeant) — Nov. 2008 – Dec. 2010
- Worked as an administrative aide for a major general at the Republic of Korea Air Force Headquarters