

Donghyeon Won

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Skills

Programming: Python, R, C++, Matlab, Java, SQL, Lua

Tool: PyTorch, Torch7, Scikit-Learn, MongoDB, dlib, OpenCV

Specialty: Machine Learning, Deep Learning, Computer Vision, Face Recognition, Data Analysis

Publications

- **Donghyeon Won**, Zachary C. Steinert-Threlkeld, and Jungseock Joo. "Protest Activity Detection and Perceived Violence Estimation from Social Media Images." In Proceedings of *ACM Multimedia* 2017. [Media Coverage: **The Register**] [Acceptance rate: **28%**]
- Yui Ha, Jeongmin Kim, **Donghyeon Won**, Jungseock Joo, and Meeyoung Cha. "Characterizing Clickbaits on Instagram." [To appear at International AAAI Conference on Web and Social Media (*ICWSM*) 2018] [Acceptance rate: **16%**]

Education

University of California, Los Angeles (UCLA)

Los Angeles, CA

M.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Expected: June 2018

Relevant Courses: Machine Learning, Deep Learning, Bayes-Net, Large Scale Data Mining, Graphs & Network Flow

Seoul National University (SNU)

Seoul, Korea

B.S. IN ELECTRICAL AND COMPUTER ENGINEERING

February 2016

Experience

Graduate Researcher

Los Angeles, CA

JOO LAB, UCLA (ADVISER: PROF. JUNGSEOCK JOO)

Oct 2016 – Present

- Implemented a computational pipeline for protest detection and violence estimation from Twitter images
- Designed a clickbait detector for fashion posts on Instagram
- Published 3 full research papers to top computer science conferences

Research Intern

Seongnam, Korea

APPLIED SURFACE TECHNOLOGY INC.

Oct 2015 – May, 2016

- Improved a machine learning based MALDI-TOF MS bacteria identification system

Undergraduate Researcher

Seoul, Korea

DATA SCIENCE AND ARTIFICIAL INTELLIGENCE LAB, SNU (ADVISER: PROF. SUNGROH YOON)

Oct 2014 – Oct 2015

- Designed and implemented an advanced unbiased graph sampler inspired by Hybrid Monte Carlo

Projects

Protest Detection and Violence Estimation from Social Media Images

Python, Lua, PyTorch, Torch7, dlib, AMT, MongoDB

<https://github.com/wondonghyeon/protest-detection-violence-estimation>

- Created a deep CNN based image classifier to detect protest images on Twitter and measure their perceived violence of each image, achieving a classification accuracy of 92%
- Built a MongoDB database to store a large number of tweets and filter them by regions, and time periods and calculate numbers of unique users
- Constructed "UCLA Protest Image Dataset", a public large image dataset, using Amazon MTurk (AMT), downloaded by 20+ times
- Analyzed 15 real-world protest events, including Women's March and BLM, regarding violence, demographic and crowd size

Gender and Race Classification from Face Images

Python, dlib, Scikit-Learn, OpenCV

<https://github.com/wondonghyeon/face-classification>

- Implemented a face image classification model to classify gender and race using Deep CNN
- Achieved accuracies of 95% for gender and 94% for race

Clickbait Image Classifier

Python, PyTorch, Scikit-Learn, NLTK

- Built an Instagram clickbait detector for fashion post with an average precision of 0.94
- Analyzed Instagram posts and users and concluded couture brands have more clickbaits than street brands

Bacteria Identification with MALDI-TOF MS

Matlab, MySQL, Python, R

- Developed an efficient MALDI-TOF MS signal processing algorithm, reducing error rate by 8% of existing bacteria identification system
- Applied genetic algorithm and Random Forest to develop a novel bacteria identification system

Presentations

- **Donghyeon Won**, Jungseock Joo, and Zachary C. Steinert-Threlkeld. "Violence, Demographics, and Protest Dynamics." Presented at ISA Annual Convention 2018.
- **Donghyeon Won**, Jungseock Joo, and Zachary C. Steinert-Threlkeld. "Violence, Demographics, and Protest Dynamics." Accepted for presentation at APSA Annual Meeting 2018.

Honor

National Scholarship for Science and Engineering

Korea Student Aid Foundation

Full tuition given to top engineering undergraduates for academic excellence

Mar. 2009 – Feb. 2013