Donghyeon Won

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Skill

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

Publication

- **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**, Jungseok Joo, and Meeyoung Cha. "Characterizing Clickbaits on Instagram." [To appear at International AAAI Conference on Web and Social Media ***(ICWSM)*** 2018] **[Acceptance rate: 16%]**
- **Donghyeon Won**, Jungseock Joo, and Zachary C. Steinert-Threlkeld. "Estimating Protest Violence, Demographics, and Dynamics with Geolocated Images." Annual Convention of the International Studies Association (ISA) 2018

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*
JooLab, 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

Project

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

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*