

JaeJoong Lee

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Education

Purdue University

West Lafayette, IN, USA

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Aug. 2015 - May. 2018

- Cumulative GPA: 3.74 / 4.00, Dean's List: All semesters
- Relevant Courses: Deep Learning in Computer Vision(A+), Tensors in Deep Learning(A+), Deep Learning for Prediction(A+), Data Structures And Algorithms(A), Analysis Of Algorithm(A), Image Processing In App(A)
- Major Concentration: Machine Intelligence

Research Interests

Computer Vision, Deep Learning, Image Processing, Pattern Recognition, Video Segmentation, Scene Understanding

Research Experience

Cloud Computing, Machine Learning, And Network Research Lab

Purdue University

UNDERGRADUATE RESEARCH ASSISTANT (PROFESSOR AGGARWAL VANEET)

Feb. 2017 - July. 2019

- Conducted experiments to collect Photoplethysmography(PPG) signals and videos from subjects using attached sensors
- Modified facial feature algorithm in DeepFace to get extra landmarks using Python3 and OpenCV
- Implemented algorithm to extract peaks in custom range of PPG signals
- Created deep neural network by tuning parameters with Grid Search in Tensorflow and Keras to get 98% accuracy with GPU

Applied Optics Lab

Purdue University

UNDERGRADUATE RESEARCH ASSISTANT (PROFESSOR EUIWON BAE)

Aug. 2016 - Present

- Built model to classify multi-labeled mushrooms using Tensorflow and Keras and deployed model to Android application using TFLite
- Implemented real-time 2D mobile spectrometer using signal, image processing in Android Application using Java
- Designed lateral flow assay(LFA) Android application using Linear Algebra and image processing, and SQLite
- Developed Android application to get freshness of meat using OpenCV and contour extraction algorithm in Android

Design, Visualization, and Cognition Lab

Purdue University

DISCOVERY PARK UNDERGRADUATE RESEARCH INTERNSHIP PROGRAM (PROFESSOR PAUL PARSONS)

Aug. 2015 - May. 2016

- Implemented visual effects in visualization of Document Search Result using Angular JS
- Designed layout of document result from PubMed page using Javascript

Publications

Smartphone-based lateral flow imaging system for detection of food-borne bacteria

YOUNGKEE JUNG, YOOJUNG HEO, **JAE JOONG LEE**, AMANDA DEERING, AND EUIWON BAE

2019

- Journal of Microbiological Methods, Article in Press, [doi:10.1016/j.mimet.2019.105800]

Tensor-flow Based Mushroom Image Classification by Smartphone

JAE JOONG LEE, EUIWON BAE, CATHY M. AIME

2019

- Manuscript in preparation.

A Computer Vision Algorithm to Identify High Force Exertions from Facial Expressions

HAMED ASADI, GUOYANG ZHOU, **JAE JOONG LEE**, VANEET AGGARWAL, DENNY YU

2019

- Submitted to Ergonomics(Journal)and under review

Covfefe: A Computer Vision Approach For Estimating Force ExertionsVANEET AGGARWAL, HAMED ASADI, MAYANK GUPTA, **JAE JOONG LEE**, AND DENNY YU

2018

- Preprint arxiv[[pdf](#)]

Application of smartphone-based spectrometer for colorimetric assaysYOUNGKEE JUNG, YOOJUNG HEO, **JAE JOONG LEE**, AMANDA DEERING, AND EUIWON BAE

2018

- Manuscript in preparation.

Work Experience

Headquarters and Headquarters Battalion, Eighth Army, US Army*USAG Humphreys, S.Korea*

INTERPRETER, CORPORAL

Nov. 2018 - Jul. 2020

- Served as an interpreter for Group Commander as a member of Korean Augmentation to the United States Army
- Awarded military medallions because of dedication to enhance ROK-U.S. alliance from U.S. 2nd Infantry Division and ROK Army Support Group

Binded*San Francisco, USA*SOFTWARE ENGINEER INTERN [[LINK](#)]*Jun. 2017 - Aug. 2017*

- Implemented RESTful API computer vision benchmark server using Docker, Python3, Elasticsearch and CircleCI.
- Built RESTful API server for faster copyright registration system through Office of Copyright using Docker and Flask.
- Compared algorithms to extract image features using VLAD that introduced in computer vision papers using the benchmark server.
- Crawled all registered copyright record, which are more than 5M, in Office of Copyright and analyzed their trends using PostgreSQL and Python3.

Dr.Kitchen*Seoul, S.Korea*

BACK-END SOFTWARE ENGINEER

Jun. 2016 - Aug. 2016

- Designed all database schemes and held meetings to collect required functions from each department with A/B test from users
- Implemented ordering, shipping tracking, customer service system and Payment Gateway API server using Django, PostgreSQL and AWS

HelloCoach*Berlin, Germany*

SOFTWARE ENGINEER INTERN

Jan. 2016 - May. 2016

- Implemented Invitation function and automated testing scripts in hybrid mobile application using Cordova, Ionic and Angular JS
- Built Language Translation module to provide service in different countries

Poster Presentations

Purdue University Undergraduate Research Symposium*IN, U.S.A*PRESENTER FOR <FORCE EXERTION PREDICTION USING PPG WITH FACIAL FEATURES>[[PDF](#)]*Nov. 2017*

- Explained how facial features are selected, architecture of deep learning model, and design of neural network.

Discovery Park Undergraduate Research Program Poster Session*IN, U.S.A*PRESENTER FOR <WORLD'S FIRST 2D MOBILE SPECTROMETER> [[PDF](#)]*Nov. 2016*

- Explained work flow and algorithms in the Android application.

Discovery Park Undergraduate Research Program Poster Session*IN, U.S.A*PRESENTER FOR <DOCUMENT SEARCH RESULT VISUALIZATION> [[PDF](#)]*Apr. 2016*

- Explained why visualization in a document search is important

Teaching Experience

CS190 - Tools*Purdue University*

UNDERGRADUATE TEACHING ASSISTANT

Aug. 2017 - Dec. 2017

- Introduced GIT, Unix/Linux basics, terminal controls, and debuggers to CS Freshmen
- Held one lab session per week with 20 students for explaining and giving demonstrations.

CS177 - Programming with Multi Media Objects*Purdue University*

UNDERGRADUATE TEACHING ASSISTANT

Aug. 2016 - Dec. 2016

- Held two lab session for 60 CS students and explained syntax of Python3
- Held office hour once per week to explain extra concepts or tips for students and graded assignments and exams

Awards & Scholarships

AWARD

- | | | |
|------|---|-----------------------|
| 2019 | 2nd Place with \$5,000 , Republic of Korea Army 1st Start up Competition as team leader [img1]
[img2] | <i>Seoul, S.Korea</i> |
| 2016 | Excellence Prize , NAVER Corp Hackthon | <i>Seoul, S.Korea</i> |

SCHOLARSHIP

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|------|---|------------------|
| 2016 | \$500 , 2016 Fall Discovery Park Undergraduate Research Internship Program | <i>IN, U.S.A</i> |
| 2016 | \$500 , 2016 Spring Discovery Park Undergraduate Research Internship Program | <i>IN, U.S.A</i> |
| 2015 | \$500 , 2015 Fall Discovery Park Undergraduate Research Internship Program | <i>IN, U.S.A</i> |