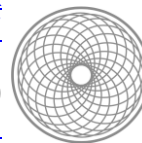


DUCK HA HWANG

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OBJECTIVE

To utilize my training in machine learning and computer vision to solve challenging problems while making a positive impact on society

Proven talent for aligning business strategy and objectives with established electrical engineering and software development paradigms to achieve maximum operational impacts with minimum resource expenditures. In-depth understanding of the entire software development process (design, development, and deployment) from working in teams to develop a project from scratch. R&D on a broad range of computer vision, data modeling and machine learning topics leveraging various funding sources including government contracts, private funding, and external commercial partners. Self-motivated, high potential, engineering talents to find technology solution by self. Willingness and ability to quickly adapt and learn new technologies.

PROFESSIONAL EXPERIENCE

Computer Vision Engineer / Machine learning Engineer

SEPTEMBER 2015 TO MARCH 2017

BIO-AND NANO-PHOTONIC LABORATORY (OZCAN GROUP) UCLA GRADUATE STUDENT RESEARCHER

PORTABLE COST-EFFECTIVE 2-D MICROSWIMMER IMAGING PLATFORM FOR SPERM HEALTH ANALYSIS

- Reconstructed hologram images into a visually recognizable object image using Fourier Transform Propagation, Amplitude, Phase image reconstruction and Auto-focusing (Tamera coefficient).
- Converted Jpeg photos into RAW(BGGR) image format: dcraw, pixel interpolation and pixel smooth.
- Applied binary image analysis to detect our target cell objects: Otsu's Method, Dilation and Erosion (Opening and Closing), Boundary extraction, thinning, thickening.
- Built the deep neuron networks to achieve 99% accuracy in label-free cell classification the system captures quantitative optical phase and intensity images and extracts multiple biophysical features of an individual sperm sample.
- Designed multi-frame track algorithm for multi-target using dynamic programming that employed the Current Statistical model.
- Authored and applied for object-oriented programs with Python and C++ simulated by MATLAB.
- Designed and developed user-friendly graphical user interface (GUI) system for testing, verification, configuring and controlling all parameters.

BIO-GAME

- Formulated and developed the newest version of a game designed to teach teenagers how to identify viruses in blood samples.
- Integrated Pedagogical theory with data analysis employing T-test of Microsoft Excel and Python to predict each student's performance
- Evaluated 5800 Korean students' performance to identify student learning patterns and built a pipeline to automate data extraction from the data warehouse to generate analytics results.

Software Engineer

OCTOBER 2013 TO OCTOBER 2014

PELLUE INC., SEOUL, SOUTH KOREA

DAY.LY ANDROID APPLICATION

- Programmed voice support and news services for Android app using Java, catering toward busy lifestyles.
- Involved the writing SQL Queries and Joins; fixed bugs to add functionality and gave a professional look to the app.
- Participated in the Quality Assurance of the app including, testing of the User Interface and testing the app on different mobile devices.
- Working on custom libraries for generating views and layouts and integrated them into App.

EXCITING PROJECTS

Machine Learning

MARCH TO JUNE 2017

- Using Unsupervised Learning (K-Means, GMM) analyzed a dataset containing data on various customers' annual spending amounts of diverse product categories for internal structure.
- Finding Donors for CharityML: Employed several supervised (GaussianNB, XGBoost, SVM) algorithms to accurately model individuals' incomes using data collected from the 1994 U.S. Census.
- Bag of Words: NLP (Natural Language Processing) technique to load and clean the IMDB movie reviews, then applying a simple Bag of Words model to get accurate predictions.
- Predicting Boston Housing Prices: Predicted real estate prices based on the house features with a decision tree regressor analysis.
- Titanic Survival Exploration: Built a decision tree model for predicting the survival of each passenger aboard the RMS Titanic.

UCLA - GRAPHS&NETWORK FLOW, PATTERN RECOGNITION

JANUARY TO DECEMBER 2016

- POPULARITY PREDICTION ON TWITTER: Build linear model used to predict popularity on the tweets along with a method of Regression, Classification, and Singular Value Decomposition.
- EXPERIMENTS ON DEEP LEARNING WITH CONVOLUTION NEURAL NETWORKS: Trained and tested a typical convolutional neural network (CNN) structure in a task of classifying 10 object classes.
- PCA AND FLD FOR ANALYZING HUMAN FACES AND DETECTION BY BOOSTING TECHNIQUES: Developed ASM and AAM model for face reconstruction.
- FACE SOCIAL TRAIT AND POLITICAL ELECTION ANALYSIS BY SVM: Showed the correlations between facial attributes, social attributes, and election outcomes.

UCLA, 360 Degree Camera Module

APRIL TO JUNE 2016

- Designed a device that can capture 360-degree snapshots or videos using multiple web cameras.
- Provided the advanced viewing interface has playback controls for changing viewing direction which allows a user to perceive a seamless 360-degree view, as a form of virtual reality.
- Computed Scale-invariant feature transform (SIFT), Random sample consensus (RANSAC), Homograph calculation, Seamless Stitching, Cylindrical projection, and Blinding.

EDUCATION

MASTER OF SCIENCE (M.Sc.) IN ELECTRICAL ENGINEERING, COMPUTER VISION AND MACHINE LEARNING
MARCH 2017
University of California, Los Angeles
BACHELOR OF SCIENCE (B.Sc.) IN ELECTRONIC ENGINEERING, SIGNAL & SYSTEM
AUGUST 2013
Kyonggi University, Suwon-si, Gyeonggi-do, Republic of Korea, GPA: 4.10 / 4.5 (Major GPA: 4.42 / 4.5)
UDACITY - MACHINE LEARNING ENGINEER NANODEGREE
MARCH TO JUNE 2017 (ON GOING)
Make Predictive Model, Co-Created by Google
DAT101X: MICROSOFT PROFESSIONAL ORIENTATION: DATA SCIENCE
APRIL 2017
Course of study offered by Microsoft, an online learning initiative of Microsoft Corporation through edX.

AWARDS AND HONORS

- STATE SCHOLARSHIP, KOREA STUDENT AID FOUNDATION, REPUBLIC OF KOREA **2012-2013**
- Three times awarded for excellent academic performance (Top 5% of school records)
- SCHOOL SCHOLARSHIP, KYONGGI UNIVERSITY **2011-2013**
- Four times awarded for 1st, 3rd, 4th, 6th Place in academic standing in the Electronic Engineering Department
- THE CAMPUS PATENT STRATEGY UNIVERSIADE AWARD, KOREAN INTELLECTUAL PROPERTY OFFICE **DECEMBER 2012**
- PATENT STRATEGY CONTEST AWARD, KYONGGI UNIVERSITY **DECEMBER 2011**

TECHNICAL SKILLS

Technical Proficiencies: Python (Expert, 3 years), MATLAB (Expert, 3 years), C++ (Advanced, 4 years), Java (Expert, 3 years), R (Skilled, 1 years), SQLite (Skilled, 1 years), QT (Skilled, 2 years)

Libraries: OpenCV, TensorFlow, scikit-learn, pandas, numpy

Hobbies: Weight-lifting (Official Instructor 1 years, Professional)