DONGUK KIM

(765) 701 5034 donguk.kim1112@gmail.com LinkedIn GitHub

SKILLS

JavaScript, Ruby, Python, MATLAB, SQL, HTML, CSS, Git, React, Redux, Node.js, Rails, Socket.IO, jQuery, PostgreSQL, MongoDB, Webpack, AWS S3, Heroku

SOFTWARE PROJECTS

Twitter Heatmap (JavaScript, Node.js, Socket.IO, IBM Watson, Twitter API) live site | github

Data visualization app of realtime tweeting activity around the world

- Integrated the Twitter API to the client through a websocket-connected Node backend, enabling real time tweets to travel smoothly to the browser and ensure minimal traffic delay.
- Incorporated the IBM Watson sentiment analysis API to analyze trends in tweet content.
- Dynamically displayed Tweet content using OOP and Vanilla JS to ensure DRYer and organized code.

MovieBnB (JavaScript, React, Redux, Ruby, Rails, PostgreSQL) live site | github

Single-page AirBnB clone where users can search and book homes in movies

- Created a searchbar from scratch that suggests autocomplete fields to explore homes using RegEx.
- Constructed CRUD actions (create/edit/delete reviews and bookings) and React components ensuring data persistence in the PostgreSQL database by leveraging the Flux and MVC architecture.
- Integrated React and Rails with Redux's global store by dispatching RESTful AJAX requests only when necessary to give the user a seamless and uninterrupted experience.

Cell Detector (Python, OpenCV, PyQt) github

GUI that automatically detects cells in microscopy images

- Designed an intuitive internal lab tool using Python and PyQt to allow easier and faster data processing, thus diminishing manual work needed to crop out cells from the background.
- Researched and implemented image processing algorithms using the OpenCV library to output optimal detection yields (~95%), ensuring reduced levels of data wastage.

Cell Tracker (MATLAB) github

Motion tracker that acquires cytometric data over time

- Investigated and applied mathematical algorithms such as the Kalman filter and Hungarian algorithm in MATLAB to ensure reliable cellular trajectory tracking (~80% accuracy).
- Produced an intuitive user interface in order to perform accuracy testing of the source code.

EMPLOYMENT

***Seoul National University Hospital*, Korea** Jan 2017 - June 2017

Research Intern @ Medical Electronics Laboratory

- Developed image-guided surgery software in MATLAB integrated with medical machinery (da Vinci surgical platform) allowing surgeons to see through organs and visualize the internal anatomy of the patient during surgery, by means of a transparent 3D CT-scan image model.
- Conducted research and source code development which resulted in a clinical trial on a patient.

EDUCATION

App Academy, San Francisco CA Oct 2018

Fullstack Web Development Course

Imperial College London, United Kingdom Oct 2016

Master of Science, Biomedical Engineering

Newcastle University, United Kingdom June 2015

Bachelor of Engineering, Mechanical Engineering

Awards: IUMS (2012) and Stephenson Engineering scholarship (2014, 2015)

PUBLICATIONS

[1] Dongheon Lee, Donguk Kim, Jinuk Yi (MD), Hyeonjung Gong (PhD), Heechan Kim (PhD), Yeongjune Chae (MD, PhD). "*Application of Augmented Reality in Robotic Thyroidectomy*". Annals of Surgical Treatment & Research. ASTR-18-101. (To be released)