

Hyunjun Choi

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EDUCATION

- University of Southern California**, Los Angeles, CA December 2022
 - Master of Science, Major in Computer Science**
- University of Southern California**, Los Angeles, CA December 2018
 - Master of Science, Major in Data Informatics**
- Inha University**, Incheon, South Korea August 2016
 - Bachelor of Science, Major in Computer Science**

SKILLS

- Programming: Python, ROS, MATLAB, R, C++, C, JavaScript, HTML5, SQL, NoSQL
- Tools: TensorFlow, OpenCV, Keras, Git, LaTeX, Docker, Kubernetes, Nginx, AWS, GCP, Android Studio Code

WORK EXPERIENCE

Software Engineer-Machine Learning Internship June 2021-Current 2022

Noria Water Technologies, Inc., Los Angeles, U.S.

Noria Water Technologies is a technology company providing solutions for improving operations of water-based processes through real-time monitoring, big data, AI, and analytic capabilities.

- Applied Background Subtraction Algorithm based on machine learning and deep learning methods for image to calculate percentage of coverage of solid materials on membrane surfaces in Python using Scikit-learn and OpenCV
- Implemented an image classifier based on Support Vector Machine and Convolutional Neural Network for fouling/scaling identification in Python using Scikit-learn, OpenCV, Keras, and GPU, and containerized the script with Docker.
- Trained and tested Mask R-CNN to detect and delineate each object in image and maintained Noria's software system in C++ and implemented alert system for water engineers in Python using Selenium and Crontab
- Implemented automatic image change detection and collection system on water filter membrane in Python using SSIM, AWS S3, Crontab, Raspberry pi, and Arduino camera, managed AWS S3 with collected images, and tested on embedded system
- Utilized: Python, Scikit-learn, Keras, GPU, OpenCV, GitHub, Docker, Selenium, HTML, Crontab, AWS S3, Raspberry pi, and Arduino camera

Research Assistant February 2022-Current 2022

USC Musculoskeletal Biomechanics Research Laboratory, Los Angeles, U.S.

- Analyze and visualize biomechanical data of Physical Therapists' performing manual therapy skills (3-d motion capture and force plate).
- Develop software for students majoring in Physical Therapy

Research Assistant January 2018-May 2018

- Analyzed a dataset provided by Department of Surgery at USC's Keck School of Medicine so as to identify features associated with graft survival after orthotopic liver transplantation (OLT)
- Built Neural Networks, and Support Vector Machine to predict graft survival after OLT using pre-transplant features
- Hyun Jun Choi, Yujia Deng, Ana Farzindar Predict Graft Survival after OLT using Pre-Transplant Features using machine learning and statistical method (2018) [\[Report\]](#)

PROJECTS

Personal Website: <https://hyunjuna.github.io> (for additional information and projects)

Deep Learning For Autonomous Driving in Grand Theft Auto IV August 2021-December 2021

- Trained and tested AlexNet, Xception, InceptionV3, ResNet50, and LSTM in Keras to create AI agent that drives as a well-trained human player and containerized the script with Docker [\[Paper\]](#), [\[GitHub\]](#)
- Implemented data collection script in Python that captures frames from the game within 800x600 window along with the keypresses of the human player while driving
- Utilized: Python, TensorFlow, Keras, Docker, Google Cloud Platform, GPU

Data Visualization on the Correlates of Wars dataset September 2018-November 2018

Website: <http://www-scf.usc.edu/~choi797/teampeace/index.html>

- Designed and developed web application on Node.js, and front-end interface using Angular written in JavaScript
- Generated responsive and interactive charts with D3 to discover data features

Recommender System February 2018-April 2018

- Calculated similarity between users from Jaccard, Cosine, and Pearson, and compared and analyzed outcomes
- Implemented User-based and Item-based CF in Python and predicted active users' rating (RMSE<0.405)
- Instantiated SON Algorithm on Apache Spark in Python to improve parallel computing ability