

# HYELIM YANG

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## 🎓 EDUCATION

<b>M.S. Artificial Intelligence</b> <i>San Jose State University, San Jose, CA</i>	<b>GPA: 4.0 / 4.0</b>	Aug 2021—Present
<b>M.S. Analytics</b> <i>Georgia Institute of Technology, Atlanta, GA</i>	<b>GPA: 4.0 / 4.0</b>	Jan 2018—Aug 2020
<b>Master's degree, Chemical Engineering</b> <i>University of Delaware, Newark, DE</i>	<b>GPA: 3.71 / 4.0</b>	
<b>B.S. Chemical Engineering</b> <i>University of California, Berkeley, CA</i>	<b>GPA: 3.79 / 4.0</b>	

## 📖 Projects

### Database Design and Web Application Development

- Led a team of 6 and completed successfully “Web application for NBA statistics and management” within 3 months.
- Designed and constructed the relational database. Applied the Entity-relationship model with Peter Chen style. Used **MySQL** to create a database schema.
- Proficient at writing complex **SQL** queries including complex JOINS.
- Developed an web application with sufficient power to update, retrieve, and display information from the database, and to allow new data to be added to the database. Used **Python Flask**, **HTML**, and applied Object-Relational-Mapping (ORM) to interact with a database by using Python ORM library.

### Auditory Classification of Distinct Animal Vocalizations

- Successfully completed “A chirp detection models on the AWS Sagemaker” within a limited time, one and half months.
- Created an effective work-flow to develop machine learning classifiers for future work on the **AWS Sagemaker**. Applied Principal Component Analysis (**PCA**) for a feature extraction. Executed a machine learning training and evaluation cycle including hyper-parameter tuning, training, and testing using XGBoost (**gradient boost trees**) and Linear learner algorithms via the AWS Sagemaker.
- Delivered a sleep quality of chicks by detecting the number of chirps over nighttime by the optimized developed classifier in the Sagemaker.

### Data Visualization and Analytics

- Led a team of 6 and successfully completed a project, “Predicting and Visualizing Water Stress Index (WSI)”, a web application that displays global, historical and forecasted WSI data from 1980 to 2030 within 3 months.
- Performed exploratory data analysis to identify 4 independent variables among 174 features. Applied a Back/Forward Fill interpolation to impute missing independent variables using Ridge regression.
- Applied time series forecasting model, AutoRegressive Integrated Moving Average (ARIMA), to forecast the variables. Used auto.arima function from forecast package in R.
- Compared a random forest regressor, a support vector regressor, and a multi-layer perceptron regressor via 10 fold cross-validation to find the optimum model to predict WSI. Used the models from scikit-learn library and GridSearchCV to find optimal parameters for each regressor in Python.

## 💼 WORK EXPERIENCE

<b>Senior Research Engineer</b> <i>Hanwha Solutions, Daejeon, South Korea</i>	July 2014 — July 2017
• Created work flow of how to obtain a reproducible rheological data of dicyclopentadiene(DCPD) hydrocarbon resin.	

- Defined crucial rheological properties that have significant impact on adhesion/cohesion failure using statistical analysis.
- Improved a design of venturi loop reactor by using computational fluid dynamics (CFD).
- Estimated a density of polymer at high temperature and pressure by applying molecular dynamics simulation
- Created work flow of how to quantify long chain branches in polyethylene by using data from oscillatory frequency sweep tests and complex viscosities calculated from applying Time-Temperature-Superposition principal.
- Created work flow of how to calculate molecular weight distribution of polyethylene with rheology data



## PATENTS

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*Hanwha Solutions, Daejeon, South Korea*

- Yang, Hyelim., et al., 2015. Reactor for hydrogenation process. KR 1020150128298, filed Sep 10, 2015, and issued June 22, 2018
- Heo, Enjung., Yang, Hyelim., et al., 2015. Supported metallocene catalyst and method for preparing polyolefin by using the same. KR 1020150161531, filed Nov 18, 2015, and issued Sep 28, 2017.



## SKILLS

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**Software:** scikit-learn, Pytorch, Python, Java, C++, Python Flask, SQLAlchemy, NumPy, Pandas, JavaScript, NodeJS, HTML, MySQL, MSSQL, AWS, R, Git, MATLAB, Fluent, Minitab, Hadoop, ApacheSpark

**Languages:** Korean and English