

ANNE EN-TZU YANG

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SKILLS

- **Languages**, Python, SQL, Matlab, LaTeX
- **Packages**, Pandas, Flask, Numpy, Scipy, scikit-learn, PostgreSQL, Google Developers Charts, MATLAB regionprops, Facebook Prophet
- **Tools**, Git, Github, Jupyter Notebook, Linux, API
- **Knowledge**, medical imaging (DICOM), machine learning (convolutional neural network, random forest regressors), statistics (t-test, GLM, ANOVA), mathematics, data visualization

EXPERIENCE

- **Data Science Fellow**, Insight Data Science (*Minneapolis, MN*) 2019/09 - present
 - Deployed a web app to recommend best time to ride Paris metro based on air quality prediction.
 - Utilized Prophet to predict hourly PM10 level, resulting in cross-validation error of 12% (SMAPE).
 - Identified predictors correlated to air quality by $R^2 = 0.96$ using scikit-learn's random forest regressor.
 - Presented results as interactive figures to intuitively inform passengers of health risks.
- **Postdoc**, Institute for Intelligent Systems and Robotics (*Paris, France*) 2018/09 - 2019/08
 - Designed a marker system for 3D intraoperative surgical tool tracking from 2D X-ray images.
 - Employed convolutional neural network to reconstruct 3D orientation at $\sim 10ms/frame$ (errors $< 1^\circ$).
 - Published results at IEEE and European surgical robotics conferences, tinyurl.com/trackcath19.
- **PhD Intern**, Sanofi (*Bridgewater, NJ*) 2017/06 - 2017/08
 - Wrote a sub-function to add another protein into existing models on asthma formation and treatment.
 - Performed t-test and ANOVA test on 10k entries of clinical trial data of asthma medication.
 - Wrote MATLAB scripts to automate statistical tests and data visualization to expedite data analysis.
- **PhD Candidate**, Northwestern University (*Evanston, IL*) 2012/09 - 2018/08
 - Investigated the neural pathway of rat whiskers to understand human's sense of touch.
 - Constructed tapered beam mechanical models to quantify forces and moments on the whiskers and resultant neural responses in the brain when rats sensed contact or airflow.
 - Predicted 4 categories of neural responses ($R^2 = 0.93$) from 420 sets of 100-ms data sampled at 10kHz.
 - Built predictive models for whisker geometry by whisker identity using data from > 500 rat whiskers.

EDUCATION

- **PhD**, Northwestern University (*Evanston, IL*) 2012/09 - 2018/08
 - Mechanical Engineering
- **Certificate**, Kellogg School of Management (*Evanston, IL*) 2016/06 - 2016/08
 - Management for Scientists and Engineers
- **BS**, National Taiwan University (*Taipei, Taiwan*) 2008/09 - 2012/06
 - Mechanical Engineering