

ANNE EN-TZU YANG

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SKILLS

- **Languages.** Matlab, Python, SQL, LaTeX, HTML, JavaScript
- **Packages.** Pandas, Flask, Numpy, Scipy, scikit-learn, statsmodels, NLTK, psycopg2, BeautifulSoup, Prophet, PostgreSQL, SQLAlchemy, matplotlib, Google Developers Charts, Matlab regionprops, Matlab nftool
- **Tools.** Git, Github, Anaconda, Jupyter Notebook, Spyder, Azure (PostgreSQL DB, VM, NSG, blob storage), MS SQL Management Studio, AWS (RDS, EC2, Route 53), 3Dslicer, MeshLab

EXPERIENCE

- **Senior Data Scientist.** 3M (*Maplewood, MN*) 02/2020 - present
 - Constructed a self-updating dashboard on Azure VM displaying the performance of a treatment planning algorithm, based on data extracted from the blob of each individual instance.
 - Implemented Natural Language Processing to inform Oral Care's responses to worldwide customer concerns amid a pandemic, as part of the Division's Covid-19 Task Force.
 - Communicated daily across R&D, software, manufacturing, data warehouse, etc.
 - Led the first effort of historical data analyses on 3M's digital orthodontics patients.
 - Facilitated discussions with orthodontists, as both customer hearing and consultant feedback.
- **Data Science Fellow.** Insight Data Science (*Remote*) 09/2019 - 10/2019
 - Deployed an *html* web app recommending best time to ride Paris metro based on air quality prediction.
 - Utilized *Prophet* to predict hourly PM10 (pollutant) concentration, with an SMAPE error of 12%
 - Visualized results as *Google Charts* figures to provide intuitive information for health risks management.
- **Postdoctoral Researcher.** Inst. for Intelligent Systems and Robotics (*Paris, France*) 09/2018 - 08/2019
 - Designed a system of markers to track 3D intraoperative surgical tools from individual 2D X-ray images.
 - Trained *convolutional neural networks* to successfully reconstruct deformable 3D shape and orientation at ~ 10 ms/frame (errors $< 1^\circ$) with medical (*DICOM*) images acquired from an operating room.
- **PhD Intern.** Sanofi (*Bridgewater, NJ*) 06/2017 - 08/2017
 - Collaborated with pharmacologists and immunologists on adding a new module to existing computational model to simulate periostin (protein) in asthma formation and treatment.
 - Wrote *Matlab* scripts to automate statistical tests and visualization on 10k entries of clinical trial data.
- **PhD Candidate.** Northwestern University (*Evanston, IL*) 09/2012 - 08/2018
 - Created a *MEMS*-sensor able to detect mechanical signals on a rat whisker of $< 200 \mu\text{m}$ diameter.
 - Initiated a multi-university collaboration that later won a \$1M NSF grant.
 - Constructed static and dynamic models of tapered beams in *Matlab* and *Python* to quantify forces and moments on the whiskers when undergoing contact or airflow.
 - Predicted the time and scale of neural signals ($R^2=0.93$) from 420 sets of 100-ms data sampled at 10kHz.

EDUCATION

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