ANNE EN-TZU YANG

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SKILLS

- **Languages:** Python, SQL, HTML, JavaScript, Matlab, LaTeX
- **Libraries:** Matplotlib, Seaborn, Pandas, Flask, Numpy, Scipy, scikit-learn, statsmodels, XGBoost, TensorFlow, NLTK, TextBlob, SQLAlchemy, psycopg2, BeautifulSoup, Prophet
- **Tools:** Git, Github, Anaconda, Jupyter Notebook, Spyder, Power BI, Azure (PostgreSQL DB, VM, NSG, blob storage), MS SQL Management Studio, AWS (RDS, EC2, Route 53), Google Charts

EXPERIENCE

- **Senior Data Scientist**. 3M *(Maplewood, MN)* *02/2020 - present*
  - Engineered the first dataset for historical analyses on 3M's digital orthodontics– Integrated Python and C# via shell calls to upload 33k orders of data to Azure PostgreSQL Database.
  - Informed Clarity^{TM}Aligners production by creating a self-updating online dashboard displaying the run time and success rate of a deep-learning treatment planning algorithm.
  - Implemented Natural Language Processing to inform Oral Care Division's responses to worldwide customer concerns amid a pandemic, as part of the Division's Covid-19 Task Force.
  - Constructed a website from scratch for Application Engineers' insights and prioritization. The website receives uploads of customer survey responses and displays NLP results on an interactive dashboard.
  - Communicated across R&D, software, manufacturing, data warehouse, customers (dentists), etc.

- **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 $\sim$ 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 immunologists to revise a simulation of periostin 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*
  - Designed a rat whisker sensor to measure forces at micro-scale, initiating a $1M multi-university grant.
  - Constructed models of tapered beams in *Matlab* and *Python* to quantify whisker mechanics under contact or airflow. Predicted 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*