ANNE EN-TZU YANG

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SKILLS

- **Languages:** Python, SQL, HTML, JavaScript, Matlab, LaTeX
- **Packages:** Nginx, Gunicorn, Pandas, Matplotlib, Seaborn, Flask, Numpy, Scipy, scikit-learn, statsmodels, XGBoost, TensorFlow, NLTK, TextBlob, SQLAlchemy, psycopg2, BeautifulSoup, Prophet, azure-storage-blob
- **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, USA)* *02/2020 - present*
  - Provided *production insights* for Clarity™ Aligners by **mining data** from treatment planning logs and creating a *self-updating* online dashboard to summarize success rate and error code.
  - Applied **Natural Language Processing** (NLP), including a *custom text classifier*, to prioritize Application Engineers' *customer response*. Constructed the *front-end* (**html, css, javascript**) and *back-end* (**flask, PostgreSQL**) of a website to receive text data upload, perform NLP, and presents results interactively.
  - *Engineered data* for the first historical analyses on 3M's digital orthodontics. Integrated **Python** and **C#** via shell calls to extract and compile 33k orders of teeth data to **Azure** PostgreSQL Database.
  - Conducted **logistic regression** to predict *product quality* based on mechanically informed features
  - Communicated in an *agile* **Scrum** framework across disciplines (R&D, software, manufacturing, data warehouse, customers, etc). Contributed to Oral Care Division's Covid-19 Task Force.
- **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%.
- **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, USA)* *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, USA)* *09/2012 - 08/2018*
  - Designed a rat whisker sensor to measure forces at micro-scale, initiating a $1M multi-university grant.
  - Built 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, USA)* *09/2012 - 08/2018*
- **Certificate of Management**. Kellogg School of Management *(Evanston, IL, USA)* *06/2016 - 08/2016*
- **BS in Mechanical Engineering**. National Taiwan University *(Taipei, Taiwan)* *09/2008 - 06/2012*