

Min-Hsiu Hsu

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OBJECTIVE	Looking for Full-time positions in Data Science & Machine Learning .	
SKILLS	Python (pandas, SciPy, scikit-learn, OpenCV, PyTorch, TensorFlow, Keras, Plotly), SQL, NoSQL (MongoDB, Neo4j), Web Development (Flask, HTML), AWS(RDS, EC2), GCP, CLI, MATLAB	
COURSES	Machine Learning, Deep Learning, Data Science & Analytics, Database System, Convex Optimization, Scientific Computing, Statistical Process Control (SPC), Manufacturing Data & Quality Systems	
EDUCATION	University of Illinois at Urbana-Champaign (UIUC), IL, U.S.A.	Aug 2019 - present
	M.S. in Mechanical Engineering	
	<ul style="list-style-type: none">• Current GPA: 3.94/4.0• Research Fields: Smart Manufacturing, Machine Learning, Data Science, Predictive analytics	
	National Taiwan University (NTU), Taipei, Taiwan	Sep 2014 – Jun 2018
EXPERIENCE	B.S. in Mechanical Engineering	
	<ul style="list-style-type: none">• GPA: 4.14/4.30, Rank 5/145 (Top 3%)• Honors/Awards: 5 times <i>Presidential Award</i> (Dean's list)	
	Graduate Research Assistant at Automation & Digital Mfg Lab, UIUC	Oct 2019 – present
	<ul style="list-style-type: none">• Project: <i>Sensor Fusion for Remaining Useful Life Estimation in Material Fatigue</i>• Goal: Predict Remaining Useful Life (RUL) of recycled metal with Non-Destructive Testing method• Methodology: Feature engineering (PCA, FFT, wavelet transform) in multi-sensor signals (infrared camera, ultrasound, acoustic emission), SVM, CNN+LSTM, sensor fusion/selection• Impact: Systematized data storage and retrieval by deploying web app with MySQL database and predict remaining useful life of recycled materials with machine learning approaches.	
	Machine Learning Engineer Intern, Quantrend Technology	Sep 2020 – Dec 2020
	<ul style="list-style-type: none">• Project: <i>Deep Reinforcement Learning for Financial Trading</i>• Goal: Develop RL agents to produce trading strategies and validate its profitability in real market• Methodology: Proximal Policy Optimization (PPO), GRU, Time series sampling and modeling• Impact: Developed company's modular Reinforcement Learning codebase with pluggable deep neural network models, learning environments based on OpenAI Gym and StableBasline. Built machine-learning (ML) based quantitative trading strategies and training pipeline to automate and speed up hyperparameter tuning and model selection.	
	Data Science Intern at DS & ML Team, iRobot	May 2020 – Aug 2020
	<ul style="list-style-type: none">• Project: <i>Roomba Mission Successful Rate Prediction with Smart Map Scoring</i>• Goal: Investigate causality between Spatial Map Features and Roomba Mission Successful Rate• Methodology: Spatial feature engineering (GIS data), clustering, regression, classification• Impact: Developed map scoring system with AUC = 90% in binary classification to help root cause finding in robot failure, give insights in product improvement, and assist user personalized coaching.	
	Full-time Research Assistant at Biomedical Computed Imaging Lab, NTU	Mar 2019 –Jul 2019
	<ul style="list-style-type: none">• Project: <i>AI in Medical Image</i>• Goal: Develop AI system to detect abnormal structure in medical image and evaluate image quality• Applied deep learning CNN models (YOLOv3, Faster-RCNN, RetinaNet) for detecting polyps in colonoscopy image. RetinaNet achieved 93% precision and 93% recall rate• Built SVM classifier for classifying blurred and clear colonoscopy image with 98% F1 score	
COURSE PROJECTS	Data Science & Analytics, Computer Science, UIUC	Spring 2020
	<ul style="list-style-type: none">• Reliability analysis with Naive Bayes, hypothesis testing, probabilistic and statistical modeling• Clustering groups with PCA, GMM; Bayesian Network to evaluate quality of stool sample• Time series modeling to build sequenced-aware recommendation system (HMM, LSTM)	
	Manufacturing Data & Quality System, Mechanical Science and Engineering, UIUC	Fall 2019
	Course project: <i>Non-destructive Inspection of Photovoltaic Silicon Wafers</i>	
	<ul style="list-style-type: none">• Achieved 90% F1 score in defect detection (object detection task) with image processing and CNN	