

# Ting-Wei Wu

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Looking for 2020 Summer ML/Data Science/Software Engineering/Research Internship

Interests: ML & DL

## EDUCATION

### Georgia Institute of Technology

Ph.D. in Machine Learning (ECE & BIOE)

Atlanta, GA

Aug. 2019 – May. 2023

### University of California, Berkeley

M.Eng. in Bioengineering; GPA: 3.83

Berkeley, CA

Aug. 2017 – May. 2018

### National Taiwan University

B.S. & M.S. in Electrical Engineering; GPA: B.S. 3.82 (3.93/4.3); M.S. 4.00 (4.22/4.3)

Taipei, Taiwan

Sep. 2012 – Jul. 2017

## SKILLS

**Languages:** Python, Matlab, C++, SQL, Verilog, VBA, Java

**Technologies:** Data Science, Docker, Pyspark, Flask, AWS, AutoCAD, 3ds Max, Photoshop, COMSOL, Microfabrication

**Coursera Certificates:** Advanced ML (DL, Bayesian, RL, NLP), Deep Learning Specialization, Machine Learning

## HIGHLIGHTED PROJECTS

- **DeepEyeNet: Keyword-driven medical report generation** *Image Captioning & NLP*  
*Research Project collaborated with Gatech, UvA, KAUST* *Feb.-Nov. 2019*
    - Dataset Preparation: Prepared a new retinal image captioning dataset annotated by experienced ophthalmologists, containing 15,709 images used for our classification & captioning modules in keras framework with tensorflow backend.
    - Transfuser: Keyword-Driven Transformer: Devised 4 image-keyword embedding algorithms for keyword-driven image captioning model inspired by self-attention mechanism. The performance increases about 35% in BLEU-avg, 155% in CIDEr, and 58% in ROUGE compared to non keyword-driven approach. Work submitted to AAAI 2020.
    - EyeNet caption evaluator: Designed a new evaluator and measure for our caption generator jointly in adversarial training.
  - **StackBoxer: chatroom with bilingual AI chatbots - <https://chatbox.cc>** *Natural Language Processing*  
*Full-stack Project with deep learning and docker applications* *Jan.-Mar. 2019*
    - AI Model Training: Developed 4 functional chatbots trained with distinct collected dialogue corpus: StackBot (stackoverflow code queries), MovieBot, ChickBot (Daily Conversations), YourFbBot (Chat in your tongue) in developed chatroom interface.
    - Model Use: A customized 2-layer seq2seq model with attention mechanism and self-designed reward mechanism with policy gradient reinforcement set up in Django+Docker+nginx backend environment.
  - **PillNet: A pill recognition search tool in mobile device** *Computer Vision*  
*FITI Entrepreneurship Startup Team supported by Ministry of Science and Technology in Taiwan* *Apr.-Jul. 2019*
    - SSD-MobileNet & Siamese Network: Developed pharmaceutical pill identification module in real-time mobile camera by a designed siamese network trained with fda pill image database and tensorflow object detection module.
  - **wGAN in Comics: Naruto character generation by AI** *Computer Vision*  
*Side Project for image scraping and wGAN realization* *May 2018*
    - Naruto & Hatsune Character Generation: Simulated the style drawing to construct new naruto characters completely by AI with deep convolutional generative adversarial networks (GAN, w-GAN).
- Other cs-related projects:** Chinese lyrics generation with charRNN, Fire event database management with selenium, pandas, SQL, Malaria cell prediction with pytorch, Water splash system maneuvered by EMG signal with arduino.

## WORK & RESEARCH EXPERIENCE

- **Task-oriented dialogue system with multi-intent recognition** *Atlant, GA*  
*Graduate Lab Researcher advised by Prof. Bing-Huang Juang at Gatech* *Aug. 2019-now*
  - NLU Research: Developed new ML pipelines for signaling multi-intent in user queries and trained with token-level tagging.
- **RNA-Seq Droplet Device & Data Quantitative Analysis** *Berkeley, CA*  
*UC Berkeley Streets Lab Capstone Project Researcher* *Aug. 2017-May. 2018*
  - Chip Design: Expedited high-throughput droplet grabbing hydrogel beads with parameters by ML optimization.
- **Integrated Cell-sorting Sensor System** *Taipei, Taiwan*  
*NTU CMOS Biotechnology Lab Graduate Researcher & Teaching Assistant* *Jan 2014 - Oct 2016*
  - Platform: Devised new flow cytometry approach to collect impedance data and classify cell properties with frequency analysis.
  - ML Data Analysis: Utilized clustering methods (Naive-Bayes, GMM, K-means, NN) and MATLAB to extract impedance data for library creation. Published work in ACS Sensors, MicroTAS '17, IEEE NEMS '17, IMCS '16.
- **Intelligent Baby Monitoring System** *Taipei, Taiwan*  
*R&D Intern at Getac Technology Corp.* *Jul.-Aug. 2014*
  - Sensor: Led 10+ person team to design infant-monitoring device by utilizing Raspberry Pi with python GPIO scripts.