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 Atlanta, GA
Ph.D. in Machine Learning (ECE & BIOE) *Aug. 2019 – May. 2022*

University of California, Berkeley Berkeley, CA
M.Eng. in Bioengineering; GPA: 3.83 *Aug. 2017 – May. 2018*

National Taiwan University Taipei, Taiwan
B.S. & M.S. in Electrical Engineering; GPA: B.S. 3.82 (3.93/4.3); M.S. 4.00 (4.22/4.3) *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 polcy 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. Biing-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 Quantitiative 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.