YI-HUI (LILY) LEE

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RESEARCH INTEREST

Artificial Intelligence, Machine/ Deep Learning, Language and Vision

EDUCATION

The University of Texas at Dallas **Richardson, TX**
Ph.D. in Computer Science (GPA: 3.70/4.00) *Aug. 2018 to May. 2023*
- Utilize **Deep Learning** model to Empower Information Security Analysis Advisor: **Prof. Shuang Hao**

National Taiwan Normal University **Taipei, Taiwan**
M.S. and B.S. in Computer Science and Information Engineering (GPA: 4.24/4.30; 3.49/4.00) *Sep. 2011 to Aug. 2017*
- Knowledge Discovery and Data Mining: Text Mining and Relation Extraction [3] Advisor: **Prof. Jia-Ling Koh**

PUBLICATIONS

1 Mu Yang, Chi-Yen Chen, **Yi-Hui Lee**, Qian-Hui Zeng, Wei-Yun Ma, Chen-Yang Shih, Wei-Jhih Chen, "Headword-Oriented Entity Linking: A New Entity Linking Task with Dataset and Baseline," *Proc. LREC*, May 2020.

2 Kung-Hsiang Huang, Yi-Fu Fu, Yi-Ting Lee, Tzong-Hann Lee, Yao-Chun Chan, **Yi-Hui Lee**, Shou-De Lin, "A-HA: A Hybrid Approach for Hotel Recommendation," *Proc. the 13th ACM Recommender Systems Challenge Workshop*, *RecSys Challenge*, September 2019.

3 **Yi-Hui Lee**, Jia-Ling Koh, "Conditional Relationship Extraction for Diseases and Symptoms by a Web Search-Based Approach," *Proc. IEEE/WIC/ACM International Conference on Web Intelligence*, December 2018.

4 Peng-Yu Chen, **Yi-Hui Lee**, Yueh-Han Wu, Wei-Yun Ma, "IExM: Information Extraction System for Movies," *Proc. ACM WWW Demo Track*, April 2017. (**Best Demo - Special Mention Award**)

AWARDS

- **4th Place (4/1564)**, ACM RecSys X Trivago Challenge 2019 [2]
- **Travel Grant**, Google Grace Hopper Celebration, 2018
- **Women Techmakers Scholarship**, Google (Asia Pacific Area), 2017
- **1st Place**, PIXNET (Taiwan) CHATBOT HACKATHON, 2017
- **Travel Grant**, Ministry of Science and Technology (Taiwan), 2017, 2016
- **Outstanding Graduate Student**, National Taiwan Normal University, 2016
- **Undergraduate Research Fellowship**, Ministry of Science and Technology (Taiwan), 2014
- **Top 25**, ATCC X IBM (Taiwan) 11th National College Business Case Competition, 2013

EXPERIENCE

The University of Texas at Dallas **Richardson, TX**
Research Assistant, Advisor: ***Prof. Shuang Hao*** *Aug. 2018 to Present*
- Attack and defend fake image and video, arrange crowdsourced survey, ahcieve 83.5% accuracy. (**PyTorch, AWS-Mturk**)
- Combine deep learning (**MTCNN, cascade**) with rule-based approach to detect eye-blinking with 81.36% accuracy. (**TensorFlow**)
- Design region of interest, pre-process image with Gaussian/ Median blur and histogram equalization. (**Python, cv2**)
- Design Attention-Based Bilingual Image2caption Emoji Model (**ABBIE**), transforms pixels into the bilingual caption with emoji.
- Top-down **ABBIE** into transformer, bilingual language model and image caption model. (**Hugging Face, PyTorch, Python**)
- Utilize Regular Expressions, Word Segmentation, N-gram, Association Rules to analyze Domain Name. (**spaCy, AllenNLP**)
- Build token embedding by **Gensim** and group with Hierarchical/ K-means clustering. Define IoT device domain-name patterns.

Teaching Assistant *May. 2019 to Present*
- Mentor a class of 70. Moderate, evaluate and help students to achieved 91% avg. accuracy on Name Entity Recognition.
- Natural Language Processing (Spring 2020), Machine Learning (Fall 2020, Spring 2021), Semantic Web (Fall 2019)

Institute of Information Science, Academia Sinica **Taipei, Taiwan**
Research Assistant, Advisor: ***Prof. Wei-Yun Ma*** *Jul. 2016 to Jun. 2018*
- Designed a headword-oriented entity linking problem, built a product embedding model, raised accuracy from 64% to 83.4% [1]
- Proposed improved pattern ranking algorithm for movie information extraction, improved f1 score from 67% to 73.4% [4]
- Led a team of 15 people for industry-university cooperation, reduced 90% manual label time and cost for 1,000k+ products.

IBM **Taipei, Taiwan**
Software Engineering Intern *Jul. 2015 to Dec. 2015*
- Troubleshot insurance batch system, debugged and detected in user acceptance testing stage, increased acceptance rate to 95%.
- Helped to align 3 departments by clarifying customer's demand, updated requirements specifications that matched system design.
- Planned round table panel talks for 100+ interns, reported to top managements, proposed a new type of emotional cloud service.

SKILLS

- **Programming Language**: Python, PyTorch, Tensorflow, C/C++, Java, Matlab, PHP, HTML, MySQL, JaveScript, CSS
- **Platform**: Keras, AWS EC2, GCP, Linux, Twitter API, Spark, Hadoop, OpenCL, OpenMP, LaTeX, Scrapy