

Meng-Jiun Chiou

mengjiun.chiou@u.nus.edu

<https://coldmanck.github.io/>

EDUCATION

- AUG. 2017- *National University of Singapore*, Singapore
PRESENT **Ph.D.** in Computer Science
- Supervised by Prof. Roger Zimmermann and Prof. Jiashi Feng
 - Focuses on Learning Structured Representations of Visual Scenes & broader CV/ML/DL
- SEP. 2012- *National Chiao Tung University*, Hsinchu, Taiwan
JUN. 2016 **B.Sc.** in Electrical and Computer Engineering
- Overall GPA: 3.89/4.30 (or 3.90/4.00) & Took various computer science modules
- OCT. 2014- *The University of Tokyo*, Tokyo, Japan
SEP. 2015 **Exchange Student** in Information and Communication Engineering
- Supervised by Prof. Toshihiko Yamasaki and Prof. Kiyoharu Aizawa
 - Worked at *Multimedia Processing Lab*, focusing on deep learning-based image classification

PUBLICATIONS

- **Meng-Jiun Chiou**, Henghui Ding, Hanshu Yan, Changhu Wang, Roger Zimmermann and Jiashi Feng, “Recovering the Unbiased Scene Graphs from the Biased Ones”, in *Proceedings of the 29th ACM International Conference on Multimedia (ACMMM)*, 2021, pp. 1581-1590.
 - Introduced **Dynamic Label Frequency Estimation** (DLFE) for debiasing scene graph generation (SGG). Applying DLFE to SGG methods we got **new SOTA debiasing performance**, specifically, **+5 averaged mean recall points (24%→29%)** or **+21 tail recall points (17%→38%)** than the previous SOTAs.
- **Meng-Jiun Chiou**, Chun-Yu Liao, Li-Wei Wang, Roger Zimmermann and Jiashi Feng, “ST-HOI: A Spatial-Temporal Baseline for Human-Object Interaction Detection in Videos”, in *Proceedings of the 2021 Workshop on Intelligent Cross-Data Analysis and Retrieval (ICDAR)*, 2021, pp. 9–17.
 - Introduced a **keyframe-centered, large-scale video human-object interaction detection benchmark** named *VidHOI*. Proposed a strong baseline called **ST-HOI outperforming the 2D/3D baseline models by obtaining 74% relatively or 6.1% absolutely higher mAP (8.3%→14.4%)** on temporal-related HOIs.
- **Meng-Jiun Chiou**, Roger Zimmermann and Jiashi Feng, “Visual Relationship Detection with Visual-Linguistic Knowledge from Multimodal Representations”, *IEEE Access*, 2021, vol. 9, pp. 50441–50451.
 - Introduced a **novel Transformer-based multi-modal visual relation detection architecture, RVL-BERT**, enriched by the visual-linguistic knowledge from large-scale external datasets. **RVL-BERT achieved SOTA performance** on the SpatialSense dataset and **competitive results** on the VRD and VG datasets.
- **Meng-Jiun Chiou**, Zhenguang Liu, Yifang Yin, An-An Liu and Roger Zimmermann, “Zero-Shot Multi-View Indoor Localization via Graph Location Networks”, in *Proceedings of the 28th ACM International Conference on Multimedia (ACMMM)*, 2020, pp. 3431–3440.
 - Introduced a **multi-view image-based indoor localization system named GLN achieving SOTA performance**. Also **proposed a zero-shot learning pipeline** where we utilize the proposed *Map2Vec* location-aware embeddings. **Zero-shot GLN achieves promising results, e.g., 56.3% 5-meter localization error**.
- Yifang Yin, **Meng-Jiun Chiou**, Zhenguang Liu, Harsh Shrivastava, Rajiv Ratn Shah and Roger Zimmermann, “Multi-Level Fusion based Class-aware Attention Model for Weakly Labeled Audio Tagging”, in *Proceedings of the 27th ACM International Conference on Multimedia (ACMMM)*, 2019, pp. 1304–1312
 - Introduced a **multi-level attention-based audio tagging model** making segment-level predictions with temporal modeling, followed by aggregations along both time and feature domains. **I helped in the experiments which showed that our method achieves SOTA audio tagging results**.
- **Meng-Jiun Chiou**, Yamasaki Toshihiko and Aizawa Kiyoharu, “A Fast Table-Based Approach of Bag-of-Features for Large-Scale Image Classification”, in *Image Information and Television Engineers Annual Conference (ITE)*, 2015.
- **Meng-Jiun Chiou**, Yamasaki Toshihiko and Aizawa Kiyoharu, “A Fast Method of Visual Words Assignment of Bag-of-Features for Object Recognition”, in *The 18th Meeting on Image Recognition and Understanding*, 2015.

SELECTED PROJECT

- The Light* Hackathon Project **Meng-Jiun Chiou**, Xiao Ma, Yaqi Xie and Ziwei Xu, at the hackathon
- The Light* navigates blind people to move around smoothly in real time** using *MobileNet* for object segmentation. It **won 2nd prize** at iNTUition Hackathon 2017.
- Project page: <https://devpost.com/software/thelight>

SERVICES AND MEMBERSHIPS

- **Program Committee**, *NeurIPS'21 Workshop on Distribution Shifts in Real-World Applications*, *CVPR'18 Workshop on Visual Understanding of Humans in Crowd Scene*, *BigMM 2020 Graduate Student Consortium*
- **Reviewer**, *ACMMM* ('21/'20), *IEEE TMM* ('21), *IEEE TIP* ('20), *ACM TOMM* ('20), *Springer MMSJ* ('19), NUS MSCS Admission ('21, '20)
- **Teaching Assistant**, Big-Data Analytics Technology (NUS, 2021), Computer Vision and Pattern Recognition (NUS, 2018-20), Data Structures and Algorithms (NUS, 2017-18), Special Friday Lecture for High School Students (UTokyo, 2014-15)

EXPERIENCE

- OCT. 2020-
PRESENT **Research Intern, Computer Vision** at *ByteDance AI Lab* and *Trust & Safety*, Singapore
I worked on i) unbiased scene graph generation (SGG) in which I **proposed *DLFE* which achieves new SOTA debiasing performance (+5% mean recalls w.r.t. prev. SOTA)** at the AI Lab; a paper was published at *ACMMM'21*, ii) **improving smoking video detection by 10.1%** at the Trust & Safety (TnS) team, and iii) improving TnS's CV models for violation video detection.
- JUN. 2020-
SEP. 2020 **Research Intern, Computer Vision** at *Asus Intelligent Cloud Services (AICS)*, Singapore
I worked on video human-object interaction detection. First, I **introduced a new benchmark, *VidHOI***. Second, I **proposed a strong spatial-temporal model dubbed *ST-HOI* which surpasses 2D/3D baselines**. A paper was published at *ICDAR'21* (an *ACM-ICMR'21* workshop).
- DEC. 2015-
APR. 2016 **Research Assistant** at *Academia Sinica*, Taipei, Taiwan
I worked on image segmentation with Dr. Yu-Chiang Frank Wang at *Multimedia and Machine Learning Lab*.
- JUL. 2013-
JUN. 2014 **Software Development Intern @ MSP** at *Microsoft*, Taipei, Taiwan
I **developed multiple Windows Apps**, e.g., *NHK Reader* with 7K+ downloads. I also **gave tech talks in software development on Microsoft platforms** to university students in Taiwan.
 - *NHK Reader* product page: <https://www.microsoft.com/en-us/p/nhk-reader/9wzdnrcrdqdb>

SKILLS

- Deep Learning Framework: Proficient in *PyTorch*
- Programming: Proficient in *Python*; Experienced in *C++*, *Matlab* and *Java*
- Languages: Mandarin Chinese (native), English (fluent) and Japanese (fluent; JLPT N1)

AWARDS AND SCHOLARSHIPS

- OCT. 2017 **2nd Place**, *iNTUition Hackathon 2017*
 - A 24-hour hackathon held at *Nanyang Technological University*, Singapore
- AUG. 2017 **NUS Research Scholarship**, *National University of Singapore*
 - Including full tuition waiver and monthly stipend.
- OCT. 2015 **Helm Technology Scholarship**, *Helm Technology Inc.*
 - Awarded to students with superb overall GPA
- OCT. 2014 **Student Exchange Support Program**, *Japan Student Services Organization*
 - Chosen by *The University of Tokyo*
- OCT. 2014 **Short Term Exchange Scholarship**, *National Chiao Tung University*
 - Awarded to exchange students with the top 20% overall GPA
- MAY. 2014 **Xiao Yuan-Long Scholarship**, *NCTU Electrical and Computer Engineering*
 - Awarded to students with superb overall GPA

EXTRACURRICULAR ACTIVITIES

- JUN. 2013-
MAY. 2014 **Vice President** at *Chien-Kuo and Taipei First Girls' High School Alumni Association*, *National Chiao Tung University*
I took on leadership roles by organizing a variety of events.