

# Yun-Wei Chu

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## Research Interests

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My research interests span machine learning and deep learning method including but not limited to Natural Language Processing, Computer Vision, and Recommendation System.

## Education

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**National Chiao Tung University**  
*M.S. in Electrical & Control Engineering*

Hsinchu, Taiwan  
*Sep 2015 - Nov 2017*

**National Chi Nan University**  
*B.S. in Electrical Engineering*

Nantou, Taiwan  
*Sep 2011 - Jun 2015*

## Research & Teaching Experience

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**Natural Language Processing and Sentiment Analysis Lab, Academia Sinica**  
*Research Assistant, supervised by Dr. Lun-Wei Ku*

Taipei, Taiwan  
*Apr 2019 - Present*

- **Visual Storytelling**

- Implemented knowledge graphs to enrich the story content and planned a story plot before generating stories to increase coherence; Integrated Transformer with designed discriminator which aligns human judgement to refine visual stories.
- Proposed a length-controlled Transformer to generate prolonged visual stories with better focus and detail.
- Assisted on developing a website in Amazon Mechanical Turk for human evaluations on story quality.

- **Video Dialogue Question Answering**

- Designed multi-step joint-modality attention network based on recurrent neural network to reason better on dynamic scenes.

- **Multiview Items Recommendation**

- Designed a GNN-based user-oriented module that aggregate features to make personalized recommendations.

**Chaotic Systems and Signal Processing Lab, National Chiao Tung University**  
*Research Assistant, supervised by Prof. Bing-Fei Wu*

Hsinchu, Taiwan  
*Sep 2015 - Nov 2017*

- **Personalized Image-based Heart Rate Detection**

- Developed an Adaptive Neural Network Model Selection algorithm to dynamically select personalized model and eliminate facial luminance variation noise from rPPG signal. (Publication [1][4][5])
- Drafted a grant proposal, including both research proposal and budget planning, and won NTD 20 million of venture capital from Ministry of Science and Technology.

**Institute of Electrical and Control Engineering, National Chiao Tung University**  
*Teaching Assistant - Digital Signal Processing (IEC5202)*

*Feb 2016 - Sep 2016*

*Teaching Assistant - Student Service Education (UEE1001)*

*Sep 2016 - Feb 2017*

## Publications

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### Journal Papers

[1] Neural Network Based Luminance Variation Resistant Remote-Photoplethysmography for Driver's Heart Rate Monitoring. B.-F. Wu, Y.-W. Chu, P.-W. Haung, M.-L. Chung. *IEEE Access*, 2019.

### Conference Papers

[2] Multi-step Joint-Modality Attention Network for Audio Visual Scene-Aware Dialog System. Y.-W. Chu, K.-Y. Lin, C.-C. Hsu, L.-W. Ku. *AAAI workshop on Dialog System Technology Challenge*, 2020.

[3] MVIN: Learning multi-view items for recommendation. C.-Y. Tai, M.-R. Wu, Y.-W. Chu, S.-Y. Chu, L.-W. Ku. *International ACM SIGIR Conference*, 2020.

[4] A Motion Robust Remote-PPG Approach to Driver's Health State Monitoring. B.-F. Wu, Y.-W. Chu, P.-W. Haung, M.-L. Chung. *ACCV workshop on Computer Vision Technologies for Smart Vehicle*, 2016.

[5] Applied kNN and SVM classification in image-based Photoplethysmography. B.-F. Wu, Y.-W. Chu, P.-W. Haung, M.-L. Chung. *MATLAB and Simulink conference*, 2016.

## Patents

Non-contact Heartbeat Rate Measurement Apparatus. B.-F. Wu, M.-L. Chung, T.-Y. Tsou, Y.-W. Chu. *Taiwan Patent #I667635*, Issued Aug 2019.

Monitoring System and Monitoring Method for Infant. B.-F. Wu, M.-L. Chung, T.-Y. Tsou, Y.-W. Chu. *Taiwan Patent #I658815*, Issued May 2019.

## Awards & Honors

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<b>Special Award of MediaTek IoT Competition</b> , Industrial Development Bureau, Taiwan	<i>2016</i>
<b>Outstanding Team Award of NCTU Talentrepreneur Innovation Competition</b> , NCTU, Taiwan	<i>2016</i>
<b>3rd place of TIC100 Talentrepreneur Innovation Competition</b> , Advantech Inc., Taiwan	<i>2016</i>

## Academic Service

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### Peer Reviewer

International Conference on Computational Linguistics (COLING)	<i>2020</i>
The Annual Meeting of the Association for Computational Linguistics (ACL)	<i>2020</i>
The International Workshop on Natural Language Processing for Social Media (SocialNLP)	<i>2020</i>
The Annual Conference on Innovative Applications of Artificial Intelligence (IAAI)	<i>2020</i>
IEEE ACCESS	<i>2019</i>

## TECHNICAL SKILLS

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**Programming Languages:** Python, C/C++, Matlab

**Machine Learning Toolkits::** PyTorch, Tensorflow, Scikit-learn, NLTK

**Machine Learning Techniques::** Natural Language Processing, Multi-modal Processing, Graphical Theory, Deep Reinforcement Learning

**Languages:** Mandarin (native), English (professional working proficiency)

**CV last updated:** October 14, 2020