

Bo-Hao (Borris) Su

101 Section 2 Guangfu Road, Hsinchu, Taiwan 30013

+886-918990693 | ✉ borriusu@gapp.nthu.edu.tw | 🏠 <https://subohao.github.io/borriusu.github.io> | 🌐 <https://www.linkedin.com/in/bohao-su/>

Personal Profile

This is the fifth year of my Ph.D. student career in the Electrical Engineering Department of National Tsing-Hua University. I'm from Behavioral-Informatics & Interaction-Computation Lab (BIIC Lab) and my advisor is Prof. Chi-Chun (Jeremy) Lee. Till now, I have proposed 15 papers in top conferences and journals, which include topics related to affective computing, AI research, speech signal processing, and language. Besides, I was involved in 4 industry projects, 2 research-related projects, and 1 internship experience in Disney Research, where some of them are cross-border cooperation. These experiences have made me a powerful developer, and a good collaborator. Primarily, looking for Machine Learning/Research Scientist/Speech Technology Developer roles.

Education

National Tsing-Hua University

Ph.D in Electrical Engineering

Hsinchu, Taiwan

Sept 2017 - Current

- **Research Fields**

- Speech Signal Processing, Affective Computing, Machine Learning, Automatic Speech Recognition (ASR), Multi-model development

- **GPA:** 4.3/4.3

National Tsing-Hua University

Bachelor in Electrical Engineering

Hsinchu, Taiwan

Sept 2013 - June 2017

- **GPA:** 3.67/4.3

Work Experience

Disney Research (LA)

Research Associate

Los Angeles, USA

June 2022 - Sept 2022

- ASR Metric Understanding by Graph-based Model Development.
- **Designing** the heuristic **data collection process in website**.
- Build a **Graph-based model** to **recognize the acoustic-related metrics** while considering the **ambient sound condition**.
- **Technical Skills:** Python with PyTorch, Git, Javascript, Html, Docker, Shell.

IEEE-ICASSP 2022

Speech Technology for Health: From Technical Foundations to Applications Organizer & Speaker

Singapore

May 2022

- Organized a hands-on course of End2End ASR on Health dataset, including the implementation and theory material.

National Tsing-Hua University

Artificial Intelligence Innovation and Entrepreneurship Teaching Assistant(TA)

Hsinchu, Taiwan

Jan 2019 - July 2019

- Served as a TA to provide technical advice for 20 members and guide them to deploy the architecture from scratch.

National Tsing-Hua University

Speech Signal Processing Teaching Assistant(TA)

Hsinchu, Taiwan

Sept 2018 - Jan 2019

- Served as a TA to deliver and correct assignments on the knowledge of speech signal including Mel-Frequency Cepstrum Coefficient (MFCC), human voice excitation source, and final project of ASR challenge by Kaldi.

National Tsing-Hua University

Machine Learning Hands-on Workshop of SVM & DNN Organizer & Speaker

Hsinchu, Taiwan

Sept 2018

- Organized a hands-on course leading a 5-person team, including the course material, and code preparation.

Research Projects

Behavior AI: Personalized Emotion Sensing through Conversation (FutureTech 2018)

National Tsing-Hua University

Hsinchu, Taiwan

June 2018 - Oct 2018

- Implementing the **arousal-emotion recognition** with approximately **60% accuracy** and the **ASR model in real-time with 14% Character Error Rate (CER)** of the system and merge into the pipeline.

Emotion AI: Chinese MSP-Podcast Database Collection (with U.S. MSP Lab, Dallas)

National Tsing-Hua University

Hsinchu, Taiwan

June 2021 - Current

- **Designing** the overall pipeline progress and adapting the available model from English to Chinese, which including the **emotion recognition and manual labeling tasks** that is completed by the **Amazon Mturk service**.

Cloud-based AI service, ASR model developer in BIIC lab – Website of Emotion AI Life

Hsinchu, Taiwan

National Tsing-Hua University

June 2021 - Dec 2021

- I'm responsible for developing an **offline ASR** and provide the service general available, and **test** the model used on the website with **speed, functionality, and capacity**.

Industrial Projects

Automated Video Interview, Speech to Text (STT), and Text to Speech (TTS)

Hsinchu, Taiwan

E.SUN BANK

Aug 2020 - March 2022

- I'm responsible for building a Chinese ASR Model which results in **13% CER** on real-world Call Center Data.
- **2% CER Improvement** with Language Model (LM) Rescoring using End-to-End Model

Speech Bandwidth Extension (BWE)

Hsinchu, Taiwan

E.SUN BANK

March 2022 - Current

- **Designing** a robust BWE model to prevent degradation of ASR performance from various ambient condition which could be deployed to real-world system.

Agent and Customer Conversation Analysis for Call Center

Hsinchu, Taiwan

Sin-Dong BIOTECH

March 2021 - Dec 2021

- As a project manager to figure out the ultimate goal to improve **customer relationship management** from both manager and agent side, and the model is built from attributes appeared in conversation, e.g., **dialogue acts (DA)**.

Machine Learning on Edge Computing Platforms

Hsinchu, Taiwan

Qualcomm

March 2021 - Dec 2021

- We proposed to protect **privacy** by concealing the unwanted information from speech and achieved a **52.41% accuracy on speech emotion recognition with 41.14% equal error rate of recognizing identity** of the user.

Group Performance Prediction through Group Interaction & Personality for Human

Hsinchu, Taiwan

Resource (HR)

Gamania

Sep 2017 - Dec 2020

- We build a **graph-based model** correlated to players' **personality** to recognize the **group performance** through the **interaction** and achieve **78.4% accuracy** in the real-world data.

Skills

Programming Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), C/C++, HTML/CSS, JavaScript, Matlab.

Miscellaneous Linux, Shell (Bash/Zsh), \LaTeX (Overleaf), Microsoft Office, Git.

System-Related Docker, AWS, GCP

Deep Learning Pytorch, Kaldi ASR tool, espnet ASR tool, Keras, Tensorflow

Achievements

2018	National Tsing Hua University Principal Outstanding Student , Scholarship	Taiwan
2018	Second Prize in Self-Assessed Affect Recognition , INTERSPEECH 2018 ComParE Challenge	India
2019	Championship in Styrian Dialect Continuous Sleepiness , INTERSPEECH 2019 ComParE Challenge	Austria
2020	Travel Grants , INTERSPEECH 2020	China
2022	Elite-Well 2022 Spring Semester Scholarship , Scholarship	Taiwan

Languages

English Professional proficiency (TOEFL 99/120)

Mandarin Native proficiency

Academic Publications - Journal

1. **Bo-Hao Su**, Chi-Chun Lee, “**Unsupervised Cross-Corpus Speech Emotion Recognition Using a Multi-Source Cycle-GAN**” (IEEE Transaction on Affective Computing 2022/01 accepted)
2. Chi-Chun Lee, Kusha Sridhar, Jeng-Lin Li, Wei-Cheng Lin, **Bo-Hao Su**, Carlos Busso, “**Deep Representation Learning for Affective Speech Signal Analysis and Processing: Preventing unwanted signal disparities**” (IEEE Signal Processing Magazine 2021)

Academic Publications - Conference

1. Shreya G. Upadhyay, Luz Martinez-Lucas, **Bo-Hao Su**, Wei-Cheng Lin, Woan-Shiuan Chien, Ya-Tse Wu, William Katz, Carlos Busso, Chi-Chun Lee, ”**Phonetic Anchor-Based Transfer Learning To Facilitate Unsupervised Cross-Lingual Speech Emotion Recognition**” (ICASSP 2023)
2. Woan-Shiuan Chien, Shreya G Upadhyay, Wei-Cheng Lin, Ya-Tse Wu, **Bo-Hao Su**, Carlos Busso, Chi-Chun Lee, ”**Monologue versus Conversation: Differences in Emotion Perception and Acoustic Expressivity**” (ACII 2022)
3. **Bo-Hao Su**, Chi-Chun Lee, ”**Vaccinating SER to Neutralize Adversarial Attacks with Self-Supervised Augmentation Strategy**” (Interspeech 2022)
4. Yu-Lin Huang, **Bo-Hao Su**, Y-W Peter Hong, Chi-Chun Lee, ”**An Attention-Based Method for Guiding Attribute-Aligned Speech Representation Learning**” (Interspeech 2022)
5. Shreya G. Upadhyay, **Bo-Hao Su**, Chi-Chun Lee, **Improving Induced Valence Recognition by Integrating Acoustic Sound Semantics in Movies**” (EUSIPCO 2022)
6. Yu-Lin Huang, **Bo-Hao Su**, Y-W Peter Hong, Chi-Chun Lee, ”**An Attribute-Aligned Strategy for Learning Speech Representation**” (Interspeech 2021)
7. **Bo-Hao Su**, Chi-Chun Lee, ”**A Conditional Cycle Emotion Gan for Cross Corpus Speech Emotion Recognition**” (SLT 2021)
8. Shun-Chang Zhong, **Bo-Hao Su**, Wei Huang, Yi-Ching Liu, Chi-Chun Lee, ”**Predicting Collaborative Task Performance using Graph Interlocutor Acoustic Network in Small Group Interaction**” (Interspeech 2020)
9. Shreya G. Upadhyay, **Bo-Hao Su**, Chi-Chun Lee, ”**Attentive Convolutional Recurrent Neural Network Using Phoneme-Level Acoustic Representation for Rare Sound Event Detection**” (Interspeech 2020)
10. **Bo-Hao Su**, Chun-Min Chang, Yun-Shao Lin, Chi-Chun Lee, ”**Improving Speech Emotion Recognition Using Graph Attentive Bi-directional Gated Recurrent Unit Network**” (Interspeech 2020)
11. Sung-Lin Yeh, Gao-Yi Chao, **Bo-Hao Su**, Yu-Lin Huang, Meng-Han Lin, Yin-Chun Tsai, Yu-Wen Tai, Zheng-Chi Lu, Chieh-Yu Chen, Tsung-Ming Tai, Chiu-Wang Tseng, Cheng-Kuang Lee, Chi-Chun Lee, ”**Using Attention Networks and Adversarial Augmentation for Styrian Dialect Continuous Sleepiness and Baby Sound Recognition**” (Interspeech 2019)
12. **Bo-Hao Su**, Sung-Lin Yeh, Ming-Ya Ko, Huan-Yu Chen, Shun-Chang Zhong, Jeng-Lin Li, Chi-Chun Lee, ”**Self-Assessed Affect Recognition using Fusion of Attentional BLSTM and Static Acoustic Features**” (Interspeech 2018)
13. Chun-Min Chang, **Bo-Hao Su**, Shih-Chen Lin, Jeng-Lin Li, Chi-Chun Lee, ”**Bootstrapped Multi-View Weighted Kernel Fusion Framework for Cross-Corpus Integration of Multimodal Emotion Recognition**” (ACII 2017)

References available upon request.