

Chen-Hsuan Liao  
CURRICULUM VITAE

## ADDRESS

Institute of Education	Mobile: +886-970-008996
National Yang Ming Chiao Tung University	Email: abugu103@gmail.com
1001 University Rd, Hsinchu 300, Taiwan, R.O.C	

## EDUCATION

2020 ~	Ph.D.	in Educational Psychology, National Yang Ming Chiao Tung University, Taiwan Advisor: Dr. Jiun-Yu Wu
2016	M.S.	in Electronic Engineering with a concentration in solid physics, (major in 3D device modeling and simulation), National Chiao Tung University, Taiwan Thesis: <i>Modeling the Statistical Variability of Process and Random Telegraph Signals Induced Threshold Voltage Shifts in Nanoscale MOSFETs and FinFETs</i> Advisor: Dr. Ming-Jer Chen Average Score: 88.33 Rank: 14% (23/166)
2014	B.S.	in Electronic Engineering, National Chiao Tung University, Taiwan Average Score: 86.56 Rank: 26% (24/92)

## EMPLOYMENT

01/16/2017 ~ 03/02/2020	Engineer	Taiwan Semiconductor Manufacturing Company (TSMC) (N5 R&D Process Integration, N2 R&D Process Integration)
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## AWARDS & HONORS

2021	Outstanding Research Award, IED, NYCU
2020	Outstanding Teaching Assistant Award, NYCU
2020	Ministry of Science and Technology Outstanding PhD Scholarship, Taiwan

## RESEARCH INTERESTS

I'm interested in the dynamic process of learning motivation which is the key to better academic performance. As AI and e-learning spring up in educational and learning practice, understanding learner motivation is practical and crucial for instructional feedback. However, this research field lacks in-depth research. Thus, my research interests are:

- A. **AI in Education:** Machine Learning, Deep Learning, Data Visualization.
- B. **Quantitative Methodologies:** ANOVA, Chi-Squared Test, Regression, Multivariate Analysis, EFA, CFA, Path Analysis, Structural Equation Modeling.
- C. **Qualitative Methodologies:** Text Mining, Content Analysis, WordCloud.
- D. **Substantive fields:** Self-Determination Theory, Achievement Goal Theory, Instructional Strategies, Educational Testing and Measurement

## COMPUTATIONAL AND ANALYTICAL SKILLS

Combining the experience of a process integration engineer with a background in electronic device modeling and simulation, I am proficient in big data analysis, using a variety of programming languages and software packages for different types of data. With a view to applying my analytical skills to educational fields, I can further combine web crawling, machine learning and deep learning techniques with data visualization skills and advanced statistical analysis to summarize insightful information behind these structured and unstructured data.

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Statistics	✓	Perform a big data analysis by using R, SPSS, Mplus, LISREL, Python, Excel.
Web Crawling	✓	Create crawlers or robots (e.g. Facebook, Youtube, WOS, ERIC) for data mining by using Python.
Machine Learning	✓	Use machine learning algorithms for modeling, label classification, prediction by incorporating R and Python
Data Visualization	✓	Create educational dynamic dashboard by combining R, Python, Google Sheet, Google Data studio, and Google Cloud Platform.

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## PUBLICATIONS

### A. Peer Reviewed Journal Articles (\*Corresponding author)

1. Wu, J.-Y.\*, Yang, C.C.Y., **Liao, C.-H.**, & Nian, M.-W. (2021, January). Analytics 2.0 for precision education: an integrative theoretical framework of the human and machine symbiotic learning. *Educational Technology & Society*, 24(1)  
- Special Issue on “Precision Education - A New Challenge for AI in Education.
2. Wu, J.-Y.\*, **Liao, C.-H.**, Nian, M.-W., & Cheng, T. (2021, January). Using data analytics to investigate attendees’ behaviors and psychological states in a virtual academic conference. *Educational Technology & Society*, 24(1) - Special Issue on “Online synchronous conference.”

### B. Conference Articles (\*Corresponding author)

3. Nian, M.-W., **Liao, C.-H.**, Wu, J.-Y.\* (2021, January). Exploring the relationship between students’ interactions and learning outcomes in the Facebook learning group of the blended courses. *Paper presented at the 2020 National Chair Professorship Series: "Forward thinking, Interdisciplinary Research" Postgraduate Research Excellence Conference. National Taiwan Normal University, Taiwan.*
4. Huang-Fu, C.-Y., **Liao, C.-H.**, Wu, J.-Y.\* (2021, July). Comparing the performance of machine learning and deep learning algorithms classifying messages in Facebook learning group. *Paper presented at the 21st IEEE International Conference on Advanced Learning Technologies (ICALT 2021), online.*
5. Ho, Y.-L., **Liao, C.-H.**, Weng, M.-J., Cheng, T.-Y., and Wu J.-Y.\* (2021), The preliminary analysis of the association between Taiwan senior high school

students' digital distraction, learning procrastination, and autonomous learning. *Paper presented at Taiwan Association for Educational Communications and technology (TAECT 2021)*

6. Weng, M.-C., **Liao, C.-H.**, Wu, J.-Y.\* (2021). Learners' social goals and their engagements in blended learning statistics classrooms. *Paper presented at the 2022 American Educational Research Association Annual Meeting (AERA 2022)*
7. Ho, Y.-L., **Liao, C.-H.**, and Wu J.-Y.\* (2021), Investigate the mediation effect of independence learning tendency between self-regulation strategy and learning performance in a Taiwanese high school. *Paper presented at 2021 National Chair Professorship Series: "Forward thinking, Interdisciplinary Research" Postgraduate Research Excellence Conference*. National Taiwan Normal University, Taiwan.
8. Hsu, Y.-S., **Liao, C.-H.**, and Wu J.-Y.\* (2021). Exploring the influence of online learners' academic procrastination disposition and procrastination degree on their academic performance. *Paper presented at 2021 Chinese Association of Psychological Testing Annual Meeting*. National Taiwan Normal University, Taiwan.
9. Hsu, Y.-S., **Liao, C.-H.**, and Wu J.-Y.\* (2022). The impact of learning analytics dashboard use on graduate students' academic procrastination behavior. *Paper presented at 2022 Taiwan E-Learning Forum (TWELF 2022)*. National Taitung University, Taiwan.
10. **Liao, C.-H.**, Hsu, Y.-S., Wu J.-Y.\* (2022). Implementing a personal learning environment with learning dashboard in statistics courses and investigating its effect on statistical anxiety. *Paper presented at the 26th Global Chinese Conference on Computers in Education (GCCCE 2022)*. Tsing Hua University, Taiwan.

## PROFESSIONAL SERVICE

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2022.02 ~ 2022.06	Teacher Assistant of Research on Advanced Applied Statistics, IED, NYCU
2021.09 ~ 2022.01	Teacher Assistant of Introduction to Applied Statistics, IED, NYCU
2021.09 ~ 2022.01	Teacher Assistant of Applied Multivariate Analysis and Machine Learning, IED, NYCU
2021.02 ~ 2021.06	Teacher Assistant of Introduction and Implementation of Data Analysis, IED, NYCU
2021.02 ~ 2021.06	Teacher Assistant of Structural Equation Modeling, IED, NYCU
2021.02 ~ 2021.06	Teacher Assistant of Research on Advanced Educational Statistics, IED, NYCU
2020.09 ~ 2021.01	Teacher Assistant of Applied Multivariate Analysis and Machine Learning, IED, NCTU

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2020.09 ~ 2021.01 Teacher Assistant of Educational Psychology, IED, NCTU  
2020.09 ~ 2021.01 Teacher Assistant of Introduction to Educational Statistics, IED, NCTU  
2020.02 ~ 2020.07 Teacher Assistant of Advanced Educational Statistics, IED, NCTU

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## REFEREE

Ph.D. Advisor: Dr. Jiun-Yu Wu

Institute of Education & Center for Teacher Education  
National Yang Ming Chiao Tung University  
1001 University Rd, Hsinchu 300, Taiwan, R.O.C

Phone: +886-3-5712121-31843  
Mobile: +886-952-373130  
Email: [jiunyu.rms@gmail.com](mailto:jiunyu.rms@gmail.com)  
Website: [www.education.nctu.edu.tw/jiunyuwu](http://www.education.nctu.edu.tw/jiunyuwu)

