

# Fanjie Li

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## EDUCATION

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- Master's Degree**, *University of Hong Kong, Hong Kong S.A.R.* Sep. 2018 - Feb. 2020
- M.Sc., Library and Information Management (Distinction)
  - Specialist Strand: Data Science (GPA: 4.17/4.30)
- Bachelor's Degrees**, *Sichuan University, Chengdu, China* Sep. 2014 - Jul. 2018
- B.Mgt., Information Resource Management (GPA: 3.79/4)
  - B.Eng., Software Engineering (GPA: 3.73/4)
- Visiting Student**, *University of Hong Kong, Hong Kong S.A.R.* Jul. 2017 - Aug. 2017
- Advisor: Dr. Xiao Hu
- Summer Student**, *University of Notre Dame, South Bend, USA* Jul. 2016 - Aug. 2016
- International Summer Undergraduate Research Experience (iSURE) Program
  - Lab: Social Sensing Lab; Advisor: Dr. Dong Wang

## RESEARCH INTERESTS

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Learning analytics, Educational data mining, Artificial Intelligence in Education, Learning sciences, Human computer interaction, Affective computing

## APPOINTMENTS & SERVICES

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- Research Assistant**, *University of Hong Kong, Hong Kong S.A.R.* Mar. 2020 - Present
- Affiliation: CCMIR Lab (Director: Dr. Xiao Hu), Faculty of Education
- Conference Reviewer**
- The 21<sup>st</sup> International Society for Music Information Retrieval Conference (*ISMIR '20*) Jun. 2020

## PUBLICATIONS

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### Conference Papers

1. **Li, F.**, Wang, Z., Ng, T. D. J., & Hu, X. (2021). Studying with Learners' Own Music: Preliminary Findings on Concentration and Task Load. Accepted to *Proceedings of the 11th International Conference on Learning Analytics & Knowledge (LAK '21)*: ACM.
2. **Li, F.**, Xiao, Z., Ng, T. D. J., & Hu, X. (2021). Exploring Interdisciplinary Data Science Education for Undergraduates: Preliminary Results. Accepted to *Proceedings of iConference 2021*: Springer.
3. **Li, F.**, Hu, X., & Que, Y. (2020). Learning with Background Music: A Field Experiment. In *Proceedings of the 10th International Conference on Learning Analytics & Knowledge (LAK '20)* (pp. 224-229). Frankfurt, Germany: ACM.
4. Hu, X., **Li, F.**, & Kong, R. (2019). Can Background Music Facilitate Learning? Preliminary Results on Reading Comprehension. In *Proceedings of the 9th International Conference on Learning Analytics & Knowledge (LAK '19)* (pp. 101-105). Tempe, AZ, USA: ACM.
5. Hu, X., **Li, F.**, & Ng, T. D. J. (2018). On the Relationships between Music-induced Emotion and Physiological Signals. In *Proceedings of the 19th International Society for Music Information Retrieval Conference (ISMIR '18)* (pp. 362-369). Paris, France: ISMIR.

## Journal Articles

6. Li, F. & Li, G. (2017). Deep Reading: Controversy and Reconsideration. *Journal of the National Library of China*, 26(6), 16-25. doi: 10.13666/j.cnki.jnlc.2017.06.002.

## PRESENTATIONS

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### Conference Posters/Abstracts

1. Li, F. & Hu, X. (2019). A Field Experiment on Music Preference during Learning. Presented at *CITE Research Symposium 2019 (CITERS '19)* (Parallel Session 1- Paper Presentation). Hong Kong.
2. Li, F., Ng, T. D. J., & Hu, X. (2017). Emotion-Aware Music Information Retrieval Based on Physiological Signals and User Profile. Presented at *ISMIR '17* (Late-Breaking/Demo). Suzhou, China: ISMIR.

## RESEARCH EXPERIENCE

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### Master's Thesis | A Field Experiment on Music Preference during Learning

Feb. 2019 - Dec. 2019

*Supervisor: Dr. Xiao Hu*

- This study aims to a) profile the music preference of learners in view of potential individual differences, and b) investigate the association between music characteristics and listeners' learning experience.
  - 1) Designed and developed the Moody music app (iOS client with a Flask-based backend and the MySQL database) to facilitate longitudinal data collection in naturalistic settings.
  - 2) Performed acoustic analysis on the 10k music pool and estimated music emotion in the arousal-valence space via Support Vector Machines (SVM).
  - 3) Collected users' motion data, heart rate, etc. using Fitbit Versa smartwatch.
  - 4) Implemented the Multitasking test using PsychoPy based on specifications in literature, and refined an existing Python-based N-Back Test for assessing participants' working memory capacity.
  - 5) Conceived the conceptual framework. Performed data cleansing and analysis using Python and R.

### Leveraging Background Music for Learning: An Interdisciplinary Approach

Aug. 2018 - Present

*PI: Dr. Xiao Hu*

- Contributed to a laboratory experiment in this project. The experiment aims to probe the effects of five different types of background audio on reading comprehension.
  - 1) Experiment facilitator: performed the experiment to collect:
    - a) a series of cognitive, metacognitive, and affective variables using self-reported measures,
    - b) a set of peripheral physiological signals recorded by Empatica E4 wristband, and
    - c) participants' eye movement recorded by the Tobii eye tracker.
  - 2) Data analysis: Physiological signal processing and statistical hypothesis testing.

### Music Recommender Systems Based on Physiological Signals

Jul. 2017 - Present

*PI: Dr. Xiao Hu*

- This project aims to enhance the emotion-aware music recommendation via physiological sensing.
  - 1) Designed and performed a user experiment to build a dataset with synchronized physiological signals (BVP, HR, IBI, EDA, TEMP) and user-labelled music-induced emotion.
  - 2) Data analysis: Physiological signal processing, music signal processing, built the music emotion recognition (MER) model using machine learning methods.
- Completed the undergraduate thesis "Towards emotion-aware music information retrieval: Detecting emotional responses to music based on physiological sensing" under the supervision of Prof. Yuan Zhao, Prof. Tao Lin, and Dr. Xiao Hu.

*PI: Prof. Guihua Li*

- This is a subproject of a NSSF study which focuses on reading behaviour in the Omni-media Era.
  - 1) Discussed (i) major controversies in the conceptualization of *deep reading* based on a systematic literature review and K-Means clustering of expert survey responses and (ii) the mechanisms underlying *deep reading* in terms of (a) the cognitive-affective process inside the reading brain and (b) reading as a social process.
  - 2) Participated in the coding process of a grounded theory study regarding youth reading behaviour.
  - 3) Participated in the design and implementation of a reading planner app: EverRead (supported by the National College Students' Innovation and Entrepreneurship Training Program).

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## TEACHING DEVELOPMENT

### Developing and Evaluating Interdisciplinarity and Internationalization in the Curriculum of Bachelor of Arts and Sciences in Social Data Science

Aug. 2020 - Present

*PI: Dr. Xiao Hu*

- This teaching development project aims to enhance the interdisciplinary and internationalized learning experience in the B.A.Sc. Social Data Science program. Current duties:
  - 1) Develop the curriculum assessment framework based on a thorough literature review;
  - 2) Design the teacher/student interview protocol, teacher/student surveys, and document analysis protocols (sample documents: student assignment, course materials);
  - 3) Develop repositories of interdisciplinary topics and datasets for students' capstone projects.

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## HONOURS & AWARDS

### A. SCHOLARSHIP

- Wang-Wen-Guo Scholarship for Students Enrolled in Interdisciplinary Programs (2017)
- SCU First Prize Scholarship (2016), National Scholarship (2015)

### B. OTHERS - SELECTED

- Dean's Honours List, University of Hong Kong (2020)
- Graduation with Distinction, University of Hong Kong (2020)
- Outstanding Undergraduate Thesis Award, Sichuan University (2018)
- Outstanding Graduates Award, Sichuan University (2017)
- Women in MIR (WiMIR) Travel Grants, ISMIR (2017)
- Outstanding Students Award, Sichuan University (2015, 2016, 2017)
- Honorary admission, Wu Yuzhang Honors College at Sichuan University (Top 1.5%) (2015)

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## SKILLS

### A. PROGRAMMING & SOFTWARE

- Python & Essential data science packages (e.g., Pandas, NumPy, Scikit-Learn, Seaborn), R, SQL
- Swift, HTML, CSS, JavaScript, Java, C
- iOS App development, Music signal processing, Physiological signal processing
- Jupyter Notebooks, Gephi, RapidMiner, SPSS, Flask, MySQL, Axure, Adobe Creative Suite

### B. OTHERS

- UI/UX design, Graphic design, Photography, Musical instruments (Chinese zither: Guzheng, Ukulele)