

# 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)

## RESEARCH INTERESTS

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Learning analytics, Educational data mining, Human-centred design, Human computer interaction, Affective computing, Learning sciences

## 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

### Summer Research Internships

- CCMIR Lab (Director: Dr. Xiao Hu), *University of Hong Kong, HK* Jul. - Aug., 2017/2018
- Social Sensing Lab (Director: Dr. Dong Wang), *University of Notre Dame, USA* Jul. - Aug., 2016

## 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. In *Proceedings of the 11th International Conference on Learning Analytics & Knowledge (LAK '21)* (pp. 613-619).
2. **Li, F.**, Xiao, Z., Ng, T.D.J., & Hu, X. (2021). Exploring Interdisciplinary Data Science Education for Undergraduates: Preliminary Results. In *Diversity, Divergence, Dialogue: iConference 2021*. Lecture Notes in Computer Science, vol 12645 (pp. 551-561).
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).
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).
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).

### 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.

## Conference Posters/Abstracts

7. **Li, F. & Hu, X.** (2019). A Field Experiment on Music Preference during Learning. Presented at *Centre for Information Technology in Education Research Symposium 2019 (CITERS '19)*, Hong Kong.
8. **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)*.

## 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

Jul. 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.

### Deep Reading: Theoretical Conceptualization and Implications for Practices

Jul. 2016 - Jun. 2018

*PI: Prof. Guihua Li*

- This is a subproject of a NSSFC study which focuses on youth reading behaviour in the Omni-media Era.
  - 1) Discussed (i) varying perspectives on 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 *reading engagement*.
- 3) Participated in the design and implementation of a reading planner app: EverRead (supported by the National College Students' Innovation and Entrepreneurship Training Program).

## TEACHING DEVELOPMENT

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### 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.
  - 1) Developed the curriculum assessment framework and associated instruments;
  - 2) Developed repositories of interdisciplinary cases, topics and datasets in social data science;
  - 3) A document analysis of the curriculum design of existing social data science programs using qualitative content analysis and network analytical approaches;
  - 4) Designed protocols for assessing the interdisciplinarity of students' capstone projects using learning analytics methods (e.g., Epistemic Network Analysis).

## HONOURS & AWARDS

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### A. SCHOLARSHIP

- LAK Conference Scholarship, Society for Learning Analytics Research (SoLAR) (2021)
- Women in MIR (WiMIR) Grants, ISMIR Conference (2017)
- Wang-Wen-Guo Scholarship, Sichuan University (2017)
- SCU First Prize Scholarship, Sichuan University (2016)
- National Scholarship, Ministry of Education of the People's Republic of China (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)
- Outstanding Students Award, Sichuan University (2015, 2016, 2017)
- Honorary admission, Wu Yuzhang Honors College at Sichuan University (Top 1.5%) (2015)

## SKILLS

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### A. PROGRAMMING & SOFTWARE

- Python & Data science packages (e.g., Pandas, NumPy, Scikit-Learn, PM4Py, NetworkX), R
- Jupyter Notebook, RapidMiner, RapidProM, Gephi, Statistical software (e.g., Jamovi, SPSS)
- Music processing, Physiological signal processing, Visualization tools (Plotly, Seaborn, ggplot2)
- iOS App development (Swift), Web development (HTML, CSS, JavaScript, Flask), Java, C, SQL

### B. OTHERS

- UI/UX design (Axure, Affinity Creative Suite), Photography, Musical instruments (Guzheng, Ukulele)