Fanjie Li

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EDUCATION

Master's Degree, *The University of Hong Kong, Hong Kong S.A.R.*   Sep. 2018 - Feb. 2020
- M.Sc., Library and Information Management (Distinction) - Data Science
- Supervisior: Dr. Xiao Hu

Bachelor's Degrees, *Sichuan University, Chengdu, China*   Sep. 2014 - Jul. 2018
- B.Mgt., Information Resource Management (Supervisor: Prof. Yuan Zhao),
- B.Eng., Software Engineering (Supervisor: Prof. Tao Lin)

Visiting Student, *The University of Hong Kong, Hong Kong S.A.R.*   Jul. 2017 - Aug. 2017
- Supervisior: Dr. Xiao Hu

Summer Student, *University of Notre Dame, South Bend, USA*   Jul. 2016 - Aug. 2016
- Supervisior: Dr. Dong Wang

RESEARCH INTERESTS

Learning analytics, Learning technologies, Human computer interaction, Human-centered data science, Affective computing, Music information retrieval

APPOINTMENTS & SERVICES

Research Assistant, *The University of Hong Kong, Hong Kong S.A.R.*   Sep. 2020 - Present
- Affiliation: CCMIR Lab (Director: Dr. Xiao Hu)
- Department: Faculty of Education

Research Assistant, *HKU SIRI, Shenzhen, China*   Mar. 2020 - Jun. 2020

Conference Reviewer
- The 21st International Society for Music Information Retrieval Conference *(ISMIR '20)*   Jun. 2020

PUBLICATIONS & PRESENTATIONS

Conference Papers

1. **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.
2. 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.
3. 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.

Conference Posters/Abstracts

4. **Li, F.** & Hu, X. (2019). A Field Experiment on Music Preference during Learning. In *CITE Research Symposium 2019 (CITERS '19)* (Parallel Session 1- Paper Presentation). Hong Kong.

5. **Li, F.**, Ng, T. D. J., & Hu, X. (2017). Emotion-Aware Music Information Retrieval Based on Physiological Signals and User Profile. In *the 18th International Society for Music Information Retrieval Conference (ISMIR '17)* (Late-Breaking/Demo). Suzhou, China: 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.

MANUSCRIPTS

7. **Li, F.** & Hu, X. (2020). Optimizing Background Music for Learning: The Role of Music Characteristics, Task Load, and Learners' Cognitive Capacity. *Manuscript in preparation*.
8. **Li, F.** & Hu, X. (2020). Profiling the Music Preference of Learners: A Field Study. *Manuscript in preparation*.
9. Hu, X. & **Li, F.** (2020). Detecting Music-Induced Emotion Based on Acoustic Analysis and Physiological Sensing: A Multimodal Approach. *Manuscript in preparation*.

RESEARCH EXPERIENCE

Artificial Intelligence (AI) and Learning Analytics (LA) Supported Self-Regulatory Approaches to Student Well-being During and After COVID19   *PI: Dr. Xiao Hu*

- This recent project aims to design and develop an AI and LA supported pedagogical approach to improve school students' self-regulated learning and multi-faceted well-being.
- Current duties:
  1) Drafted the background / literature review section of the project proposal.
  2) Visualized the system design using a block diagram.

Master's Thesis | A Field Experiment on Music Preference during Learning   *PI: Fanjie Li*

- This study aims to a) profile the music preference of learners in view of the potential individual differences, and b) investigate the association between music characteristics and listeners' learning experience in view of the potential moderating effect of learners' traits and task load.
- Highlights:
  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 (e.g., sedentary state), heart rate, etc. using the 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   *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.
- Major contributions:
  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) eye movement data recorded by the Tobii eye tracker.
  2) Data analysis: Physiological signal processing and statistical hypothesis testing.

Music Recommender Systems Based on Physiological Signals *PI: Dr. Xiao Hu*

- This project aims to enhance the emotion-aware music recommendation via physiological sensing.
- Major contributions:
  1) Designed and performed an user experiment to build a dataset with synchronized physiological signals (BVP, HR, IBI, EDA, TEMP) and user-labeled music-induced emotion;
  2) Data analysis: Physiological signal processing, music signal processing, built the music emotion recognition (MER) model using machine learning methods.

Deep Reading: Theoretical Conceptualization and Implifications for Practices *PI: Prof. Guihua Li*

- This is a subproject of a NSSFC-funded study (No. 16ATQ005) which focuses on youth reading behaviour in Omni-media Era and strategies for reading promotion.
- Major contributions:
  1) Discussed major controversies in the conceptualization of *deep reading* based on a systematic literature review and K-Means clustering of the expert survey responses.
  2) Participated in the coding process of a grounded theory study regarding youth reading behaviour.

TEACHING DEVELOPMENT

Developing and Evaluating Interdisciplinarity and Internationalization (I&I) in the Curriculum of Bachelor of Arts and Sciences in Social Data Science

- 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 I&I assessment framework based on a thorough literature review;
  2) Design the teacher/student interview protocol, pre- & post- teacher/student surveys, and document analysis protocols (sample documents: student assignment, course materials/handouts);
  3) Develop repositories of interdisciplinary topics and datasets for students' capstone projects.

HONORS & AWARDS

A. SCHOLARSHIP

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

B. OTHERS - SELECTED

- Women in MIR (WiMIR) Travel Grants, ISMIR (2017)
- Excellent Project of SPARK Research Experience Program (2017)
- SCU Outstanding Graduates Award (2017), Outstanding Undergraduate Thesis Award (2018)

SKILLS

A. PROGRAMMING & SOFTWARE

- Python & Essential data science packages (e.g., Pandas, NumPy, Scikit-Learn), R, SQL
- Swift, HTML, CSS, JavaScript, Java, C
- iOS App development, Music signal processing, Physiological signal processing
- SPSS, Gephi, RapidMiner, Flask, Postman (RESTful API), Axure, Adobe Photoshop / Affinity Photo

B. OTHERS

- UI/UX design, Graphic design, Ability to play various instruments (Chinese zither: Guzheng, Ukulele)