Subject Description Form

Subject Code	SFT303AF
Subject Title	**AI in Fashion Business**
Credit Value	**3**
Level	**3**
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	Students will be exposed to various AI technologies being applied in the fashion industry. They will also learn the fundamental principles and mechanisms of sophisticated and commonly applied data-driven technologies, raw data analysis, and dataset structure for formulating new Artificial Intelligence (AI) applications to boost and reshape the fashion retail and marketing operations.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) understand how the AI technologies can be applied in real-life cases for enhancing fashion marketing and retailing operations and innovations; (b) be aware of basic data-driven technologies and methods to analyse data and create appropriate dataset for AI model training (c) label data for fashion related AI tasks such as image recognition, and segmentation, as well as conduct test script to be familiar with these technologies; and (d) initiate ideas or business models using AI technology for the cases/projects of fashion firms; and (e) plan, organise and deliver effective oral presentations on project work.
Subject Synopsis/ Indicative Syllabus	(a) Basic knowledge of AI for fashion business applications • Image classification: concept of image features, image classifications, attributes recognition based on the neural network. • Voice recognition: types of voice recognition technical, music style recognition and retrieval. • Video understanding: background and related knowledge about video understanding. • Text understanding. Demonstrate the tasks belong to text understanding.

	(b) Application of AI Technologies in Fashion Business • Fashion understanding • Fashion retail and marketing (c) Labelling Training Data and Testing Pre-trained Model • Labelling fashion attributes data for attributes recognition • Labelling fashion segmentation data for clothing parsing • Run test scripts to be familiar with the codes (d) Problem Formulation for Applying AI technologies in Fashion Business • Discussing the potential cases exist in current fashion industry • Problem formulation for into a technical problem with a clear solution • Searching technologies to solve the problem and verify its feasibility
Teaching/Learning Methodology	In this subject, students will gain an understanding of various types of AI technology for fashion business; how to evaluate the task and define data for model training; how to assess the availability of the data and collect them to construct the training set; and how to formulate a fashion business process into a technical task and assess the feasibility. The following tools may be used: 1. Visual Studio Code for running the testing script 2. Github: the largest source code host which provides access control and several collaboration features such as bug tracking, feature requests, task management, continuous integration, and wikis for every project. 3. LabelBee: it is an open-source annotation library to label data for general AI tasks. Lectures and tutorials will underpin students' understanding of the subject contents. Instrumental cases will be adopted to illustrate the usability of the principles in real-life fashion business. Coursework including assignments and group project will also be included.

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. Assignments	25%	✓	✓	✓			
2. Project	25%	✓	✓	✓	✓	✓	
3. Examination	50%	✓	✓	✓			
Total	100%						

Assessment Methods in Alignment with Intended Learning Outcomes

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Assignments are given to assess students' understanding on subject matters.

Project require the students to develop an AI-engaged application and potential technical proposal to benefit or improve the existing fashion industry. The project requires a project proposal and presentation as well.

A final 2-hour exam will be closed book examination.

Student Study Effort Expected

Class contact:	
• Lecture	26 Hrs.
• Tutorial	12 Hrs.
Other student study effort:	
• Self-study/Preparation	46 Hrs.
• Project/Assignments	24 Hrs.
Total student study effort	108 Hrs.

Reading List and References

Books:

Wong, W. K. (Ed.). (2018). *Artificial Intelligence on Fashion and Textiles: Proceedings of the Artificial Intelligence on Fashion and Textiles (AIFT) Conference 2018, Hong Kong, July 3–6, 2018* (Vol. 849). Springer.

Wong, W. K. (Ed.). (2017). *Applications of computer vision in fashion and textiles*. Woodhead Publishing.

Paper Articles:

Al-Rawi, M., & Beel, J. (2020). Towards an Interoperable Data Protocol Aimed at Linking the Fashion Industry with AI Companies. *arXiv preprint arXiv:2009.03005*.

Cheng, W. H., Song, S., Chen, C. Y., Hidayati, S. C., & Liu, J. (2021). Fashion meets computer vision: A survey. *ACM Computing Surveys (CSUR)*, *54*(4), 1-41.

Gong, W., & Khalid, L. (2021). Aesthetics, Personalization and Recommendation: A survey on Deep Learning in Fashion. *arXiv preprint arXiv:2101.08301*.

Kashilani, D., Damahe, L. B., & Thakur, N. V. (2018, August). An overview of image recognition and retrieval of clothing items. In *2018 International Conference on Research in Intelligent and Computing in Engineering (RICE)* (pp. 1-6). IEEE.

Liu, S., Liu, L., & Yan, S. (2014). Fashion analysis: Current techniques and future directions. *IEEE MultiMedia*, *21*(2), 72-79.

Mohammadi, S. O., & Kalhor, A. (2021). Smart Fashion: A Review of AI Applications in the Fashion & Apparel Industry. *arXiv preprint arXiv:2111.00905*.

Sha, T., Zhang, W., Shen, T., Li, Z., & Mei, T. (2021). Deep Person Generation: A Survey from the Perspective of Face, Pose and Cloth Synthesis. *arXiv preprint arXiv:2109.02081*.

Song, S., & Mei, T. (2018). When multimedia meets fashion. *IEEE MultiMedia*, *25*(3), 102-108.

Zou, X., & Wong, W. (2021). fAshIon after fashion: A Report of AI in Fashion. *arXiv preprint arXiv:2105.03050*.