

RAE2026

Digitalised Intangible Cultural Heritage Preservation: Application of Computer-Aided Pattern Generation and Digital Jacquard Weaving Technology in Reinventing Men's Cheongsam Design and Development Practice (MCO 3)

Prof. Haze Ng

UoA38

Contents

1	Description (300-word statement)	03
2	Researcher Profile	04–06
3	Research Questions	07
4	Research Outputs	08
5	Research Field and Key References	09–11
6	Research Methods	12–26
7	Research Outcomes, Findings, and Further Research	27–29
8	Research Dissemination	30–41

Title: Digitalised Intangible Cultural Heritage Preservation: Application of Computer-Aided Pattern Generation and Digital Jacquard Weaving Technology in Reinventing Men's Cheongsam Design and Development Practice

Description

This research investigates the reinvention of Hong Kong men's cheongsam design and development practice conducted between January 2023 and December 2025. It was funded by the General Research Fund (GRF) with HK\$ 818,427.

Based on the research findings on the structures, garment pattern development principles, and cutting methods of Hong Kong men's cheongsam attained from MCO 2, this project further applied computer-aided pattern generation and digital jacquard weaving technology to reinvent the design and development practice of the attire. The project aimed to 1) investigate the current practice and construct a theoretical framework and design process model from an algorithmic perspective, 2) develop digitalised systems for algorithmic pattern generation and integrated design with the adoption of CAD/CAM technologies, 3) conduct digitalised design practices and create research prototypes, as well as 4) evaluate the design practices and research prototypes and provide implications for pragmatic applications of digitalised design practice beyond the academia.

With reference to the cheongsam research programmes curated by the Hong Kong Museum of History (HKMoH), Intangible Cultural Heritage Office (ICHO), tertiary Institutes, and specialist researchers in 2011, 2014, 2018, 2019, 2021, and the research findings of MCO 2, the team conducted an in-depth qualitative study through a practice-based embedded practice-led design research. Semi-structured interviews were conducted with master-tailors, registered ICH bearers, relevant scholars, and specialist researchers to depict the current practice. A digitalised design model, which enhances the design possibility, customisation feasibility, and development efficiency, was developed and implemented through a constructive design practice. The practice was evaluated for optimising the novel design and development model of Hong Kong men's cheongsam.

The research outputs include a conference paper, a digital design portfolio, and a collection of men's cheongsam creations for a series of exhibitions and part of two museums' permanent collections.

Researcher Profile: **Prof. Haze Ng**



Assistant Professor Haze Ng joined the School of Fashion and Textiles (SFT). In 2020, as a researcher specialising in sociocultural study and theoretical–practical investigation in the scopes of fashion and textile-related intangible cultural heritage (ICH) and craftsmanship. His research investigates the traditional crafts and their historical and current development and transmission. It also examines how craftsmanship and sociocultural value in fashion and textiles evolve with social practices and cultural ecology.

In his capacity of Executive Committee Member in Education at the Hong Kong Cheongsam Association (HKCA, the designated protection organisation of the *Hong Kong Cheongsam Making Technique*, which is a representative item in the ICH list of Hong Kong and China) since 2021, Ng has been bridging the collaboration among academia, the ICH preservation community, and the authorities and plays a leading role in the protection of the *Hong Kong Cheongsam Making Technique* from a research perspective. With the aim of providing comprehensive support to the overall protection of the ICH, Ng's research strategy is developed with four research dimensions (RDs): RD1) investigation of the traditional craftsmanship and historic development of the ICH, RD2) investigation and reformation of ICH transmission model, RD3) adoption of digital technologies in ICH preservation, and RD4) reinvention of cheongsam design practice for ICH revitalisation.

Researcher Profile: Prof. Haze Ng

Ng has established a series of research projects in accordance with the multidimensional research strategy. Addressing the significantly different tailoring principles, aesthetics, sociocultural values, and paths of development between men’s and women’s cheongsams, the projects related to garment structure and craftsmanship have been developed separately for the two attires, while those related to ICH transmission and preservation are designed to examine both attires simultaneously. The projects include Two Intangible Cultural Heritage Funding Scheme (ICHFS) Projects: ‘Investigation of the Craftsmanship, Development, and Transmission of Hong Kong Women’s Cheongsam (MCO 1)’ and ‘The Craftsmanship of Hong Kong Men’s Cheongsam—Archive, Analysis, Inheritance, and Implementation (MCO 2)’; Two General Research Fund (GRF) Projects called ‘Digitalised Intangible Cultural Heritage Preservation—Application of Computer-aided Pattern Generation and Digital Jacquard Weaving Technology in Reinventing Men’s Cheongsam Design and Development Practice (MCO 3)’ and ‘Development of Digitalised Intangible Cultural Heritage Preservation Model with Multimodality for Hong Kong Cheongsam Making Technique—A Practice-led Approach (Project funded, to be implemented between January 2026 and December 2028)’; and One SFT Departmental General Research Fund (SFT DGRF) Project called ‘Reformation of Master-Apprentice Transmission Model for the Preservation of Hong Kong Cheongsam Making Technique (Research-in-progress)’.

Research Project Timeline of MOC 1, 2, and 3																				
2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025 Q1	2025 Q2	2025 Q3	2025 Q4
ICHFS 1: Investigation of the Craftsmanship, Development, and Transmission of Hong Kong Women’s Cheongsam (MOC 1)																				
								ICHFS 2: The Craftsmanship of Hong Kong Men’s Cheongsam—Archive, Analysis, Inheritance, and Implementation (MOC 2)												
								GRF 1: Digitalised ICH Preservation: Application of Computer-Aided Pattern Generation and Digital Jacquard Weaving Technology in Reinventing Men’s Cheongsam Design and Development Practice (MOC 3)												

Researcher Profile: **Prof. Haze Ng**

The related research outputs in the forms of multimedia database archives, refereed books, scholarly articles, digital portfolios, research prototypes and exhibitions have been disseminated to the public through diverse engagements, including 15 seminar presentations and thematic talks, over 30 local and international exhibitions, and various digital platforms and channels.

The research deliverables and disseminations have been acquired and archived by the Intangible Cultural Heritage Office (ICHO), Hong Kong Museum of History (HKMoH), Hong Kong Public Libraries (HKPL), Tung Wah Group of Hospitals Records and Heritage Office (TWGHs RHO), and the Technological and Higher Education Institute of Hong Kong (THEi).

Two cheongsam creations generated from Ng's research projects have been acquired by the WorldSkills Museum (WSM) as permanent collections in 2025 and one cheongsam collection will be acquired by the Hong Kong Heritage Museum (HKHM) as part of its permanent collection in 2026.

Research Questions

Q1: How are Hong Kong men's cheongsams designed and developed in the current practice?

Q2: How to apply computer-aided-design and computer-aided manufacturing (CAD/CAM) technologies in Hong Kong men's cheongsam design and development practice?

Q3: What are the advantages and limitations in the application of CAD/CAM technologies in Hong's Kong men's cheongsam design and development practice?

This research has the following aims:

- 1) Investigate the current practice and construct a theoretical framework and design process model from an algorithmic perspective.
- 2) Develop digitalised systems for algorithmic pattern generation and integrated design with the adoption of CAD/CAM technologies.
- 3) Implement digitalised design practices and create research prototypes.
- 4) Evaluate the design practices and research prototypes through interpretative phenomenological analysis.

Research Outputs

- The deliverables of the project include
 - 1 digital portfolio,
 - 2 physical exhibition series,
 - 1 virtual exhibition, and
 - 1 conference paper.

Research Field and Key References

The research was positioned in the overlapping scope of ICH study of the *Hong Kong Cheongsam Making Technique* (a national representative ICH of China), computer-aided clothing pattern design and generation technologies, and contemporary digitalised design practice.

Among the pioneering investigations of Hong Kong cheongsam (Clark, 2000; Finnane, 2007; Garrett, 2007; Chan, 2010; HKMoH, 2011; Lee & Chung, 2012; Laumann, 2013; HKMoH, 2013) and the post ICH inscription studies of the attire (Sun, 2014; Liu & Wei, 2017; ICHO, 2018; Ng, 2018; HKMoH 2019; Wu & Zhao, 2020; ICHO, 2021; Li, 2021; Liu & Zhu, 2021; Lau, Wong & Lo, 2023; Ng et. al., 2025), only three studies focused on the design, craftsmanship, and development practice of men's cheongsam (HKMoH, 2019; Li, 2021; Ng, et. al., 2025). The research analysed the historic structural development, basic dress form, craftsmanship, and tailoring procedures of men's cheongsam through literature reviews, oral history interviews, tailoring demonstration analysis, and relic inspection, thereby providing a foundation for the current study.

Based on the findings of the men's cheongsam studies (HKMoH, 2019; Li, 2021; Ng, et. al., 2025) and the transmission programme organised by ICHO in 2019 (ICHO, 2021), this research investigated the key challenges faced by the new generation of ICH successors and designers in the traditional design and development practice of the attire and explored the applicability of integrating advanced digital technologies in the practice to enhance design possibility, customisation feasibility, and development efficiency.

With reference to forerunning research on computer-aided clothing pattern design and generation for industrial customisation in the last decade (Han et. al., 2014; Meng, Mok, & Jin, 2012; Yu & Zhen, 2013; Zhu, Xie, & Peng, 2017), this research reinvented the design and development practice of the attire by establish a digitalised design model. The model was implemented by the research team, one invited fashion designer, and one invited ICH practitioner through constructive design practices. The practices were evaluated through first-person introspection and reflection on the design processes and outcomes. Insights were consolidated for optimising the digitalised design and development model of Hong Kong men's cheongsam.

Research Field and Key References

The key sources referenced for this research are listed below:

1. Han, H. S., Kim, J. Y., Kim, S. M., Lim, H. S., & Park, C. K. (2014). The Development of an Automatic Pattern-making System for Made-to-Measure Clothing. *Fibers and Polymers*, 15(2), 422-425.
2. Hong Kong Museum of History (2019). Local Men's Cheongsam Research. Unpublished research report. Accessible at Hong Kong Museum of History Resource Centre.
3. Intangible Cultural Heritage Office (2021). Transmission Scheme for Hong Kong-style Cheongsam Sewing Technique 2019 – Men's Cheongsam Making Technique. Hong Kong: Leisure and Cultural Service Department.
4. Li, B. (2021). Men's Cheongsam: History, Culture and Crafts. Cheongsam Making. Retrieved November 27, 2023, from https://cheongsam-making.com/wp-content/uploads/2021/08/Mens_Cheongsam_Brenda-Li_TC.pdf.
5. Meng, Y., Mok, P. Y., & Jin, X. (2012). Computer Aided Clothing Pattern Design With 3D Editing and Pattern Alteration. *Computer-Aided Design*, 44(2012), 721-734.
6. Yu, H., & Zhen, R. P. (2013). Research on the Fitting Garment Pattern Generation Based on BP Nerve Network in the MTM. *Journal of Beijing Institute of Clothing Technology (Natural Science Edition)*, 33(1), 36-41.
7. Zhu, W. M., Xie, Q., & Peng, H. (2017). Digitalized and Intelligentized Customization System of Men's Suit. *Journal of Textile Research*, 38(4), 87-93.

Research Field and Key References

The supplementary references of this research are listed below:

1. Chan, A. H. (2010). Fashioning Change: Nationalism, Colonialism, and Modernity in Hong Kong. *Postcolonial Studies: Culture, Politics, Economy*, 3(3), pp. 293-309.
2. Clark, H. (2000). *The Cheongsam (Images of Asia)*. Oxford: Oxford University Press.
3. Finnane, A. (2008). *Changing Clothes in China: Fashion, History, Nation*. New York: Columbia University Press.
4. Garrett V. (2007). *Chinese Dress: From the Qing Dynasty to the Present*. North Clarendon: Tuttle Publishing.
5. Hong Kong Museum of History (2011). *The Evergreen Classic: Transformation of the Qipao*. Hong Kong: Leisure and Cultural Service Department.
6. Hong Kong Museum of History (2013). *A Century of Fashion: Hong Kong Cheongsam Story*. Hong Kong: Leisure and Cultural Service Department.
7. Intangible Cultural Heritage Office (2018). *Transmission Scheme for Hong Kong-style Cheongsam Sewing Technique 2018 – Faithful to the Craft*. Hong Kong: Leisure and Cultural Service Department.
8. Lau, C. P., Wong, K. K. & Lo, W. L. (2023). *Intangible Cultural Heritage of Hong Kong Series: The Sewing Techniques of Hong Kong-style Cheongsam and Kwan Kwa Wedding Costume*. Beijing: Chung Hwa Book Company Limited.
9. Laumann, M. (Ed.) (2013). *Qipao: Memory, Modernity, and Fashion*. New Taipei City: Fu Jen Catholic University and National Taiwan Museum.
10. Lee, C. L., & Chung, M. K. (2012). *In the Mood for Cheongsam*. Singapore: Editions Didier Millet Pte Ltd and National Museum of Singapore.
11. Liu, R. P., & Zhu, B. W. (2021). *Historical Draft of Chinese Qipao*. Beijing: China Science Publishing & Media.
12. Ng, S. (2018). *Clothes Make the Woman: Cheongsam and Chinese Identity in Hong Kong*. In Pyun, K., & Wong, A. Y. (Ed.) *Fashion, Identity, and Power in Modern Asia*. Switzerland: Springer International Publishing AG.
13. Sun, X. (Ed.) (2014). *Enduring Fragrance: Exhibition of Cheongsam Culture*. Beijing: Unity Press.
14. 吳欣、趙波：《臻美袍服》，北京：中國紡織出版有限公司，2020年。
15. 劉瑞璞、魏佳儒：《清古典袍服結構與紋章規制研究》，北京：中國紡織出版有限公司，2017年。

Research Methods

The research was designed as an in-depth practice-based embedded practice-led qualitative study and multiple methods were utilised.

Literature Review and Desk Research

The literature review conducted for this research provided a knowledge foundation for the research. The key and supplementary references were reviewed to establish the theoretical framework of the research and identify the key scopes and focus of the study.

In addition to the findings on the structures and craftsmanship of diverse types of men's cheongsam from MCO 2, extended desk research was conducted to depict the key practical considerations for customising the digital design system for Hong Kong men's cheongsam. The considerations were identified as listed below.

1. Compatibility between traditional craftsmanship of men's cheongsam tailoring, digital jacquard weaving technology, and surface and structural design possibility.
2. Differences in garment pattern compositions and the corresponding markers for diverse types of men's cheongsam, including unlined, lined, and padded cheongsams.
3. Garment pattern dimension optimisation to avoid deformation caused by diverse material properties and weaving variables.
4. Garment pattern arrangement and weaving marker for optimising material consumption and weaving structure compatibility.
5. Surface pattern placement and matching at seams and all structural details, including patch pocket, stand collar, straight buttons, neckline binding, and facings.

Research Methods

Expert Interviews

In addition to the findings from MCO 2, expert interviews with purposive sampling was utilised to provide meaningful insights into the traditional and current design and development practice of Hong Kong men’s cheongsam. Second, based on the practical considerations identified from the desk research, the interviews also provided extended understanding of the dimensional relationship between the body and the garment, algorithmic pattern development formulas, and garment pattern arrangement for diverse types of men’s cheongsams.

List of Interviewees

Master Chun Cheung Lam, Registered ICH Bearer, and Veteran Master Tailor with over 60 years of cheongsam tailoring experience.

Master Lau On Hing, Registered ICH Bearer, and Veteran Master Tailor with over 60 years of cheongsam tailoring experience.

Master Ting Chao-wen, Registered ICH Bearer, and Veteran Master Tailor with over 60 years of cheongsam tailoring experience.

Master Fu Nga Kwan, Executive Committee Member of HKCA, Registered ICH Bearer, and Experienced Master Tailor with over 30 years of cheongsam tailoring experience.

Master Chow So Mui, Registered ICH Bearer, and Experienced Master Tailor with over 20 years of cheongsam tailoring experience.

Research Methods

In-depth interviews

In addition to the the difficulties of Hong Kong men's cheongsam tailoring and transmission of the craft discussed in MCO 2 and the reflections of the trainees and programme moderator in the pilot transmission programmes organised by ICHO in 2019 and 2020, in-depth interviews with purposive sampling were conducted to identify the key challenges in the design and development practices of Hong Kong men's cheongsam faced by the new generation of ICH successors and designers. It also provided insights into identifying the potential point of penetration for digital technologies to be integrated in the practice for reinvention and ideating possible solutions to address the practical considerations in the development of the digital design system.

List of interviewees

Dr Brenda Li, Registered ICH Bearer, Advisor of HKCA, Specialist Researcher and Principal Investigator of Hong Kong Cheongsam Making Technique as well as the research and projects curated by ICHO, THEi, and HKMoH.

Ms Eunice Lee, Executive Committee Member of HKCA, Specialist Researcher and Key Investigator of Hong Kong Cheongsam Making Technique as well as the research and projects curated by ICHO, THEi, HKDI, and HKHM.

Ms Katrina Tsai, Member and Researcher of HKCA with a Bachelor Degree in Knitwear Design

Ms Frona Yeung, Member and Researcher of HKCA with a Bachelor Degree in Knitwear Design

Ms Quinn Cheng, Member and Researcher of HKCA with a Bachelor Degree in Fashion Design

Mr Andrew Lau, Member and Researcher of HKCA with a Bachelor Degree in Fashion Design

Research Methods

Constructive Design Practic

A concept trial with nonrepetitive design was conducted before the actual practice.



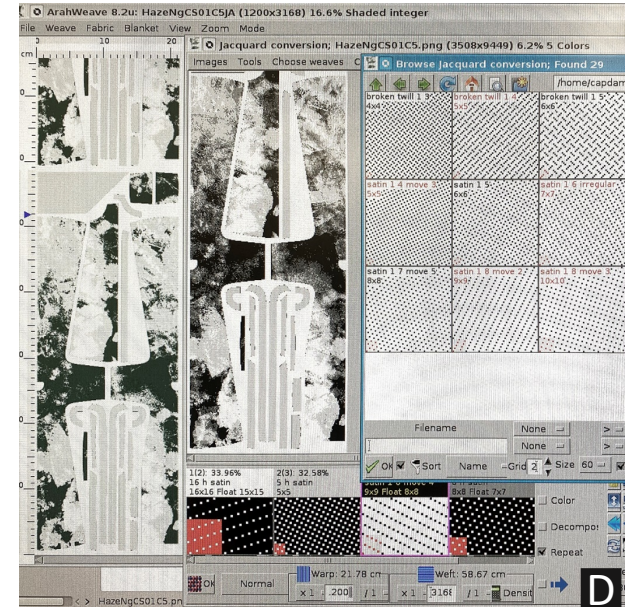
A



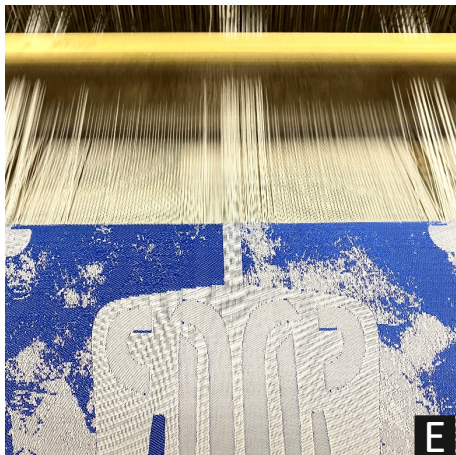
B



C



D



E



F

- Experimental nonrepetitive design on the digital men's cheongsam template
- Surface pattern arrangement and matching generated on the garment pattern template
- Garment pattern composition generated on the weaving marker
- Weaving structure design on the CAD/CAM interface ArahWeave
- Weaving the entire set of garment patterns on a loom.
- Experimental sets of garment patterns in diverse weaving structures in the same yarn and colour combination.

Research Methods

Constructive Design Practice

A collection titled 'The Compound Culture of Hong Kong' and a creation titled 'Mountain Jade' were co-developed. The design practices were conducted with an assembly of methods, including thematic literature review, field study, imagery research and sorting, mind-mapping, sketching, initial ideation, initial prototyping, reflective designer journal, semi-structured observation, imagery recording, descriptive and reflective note taking, and research prototyping.

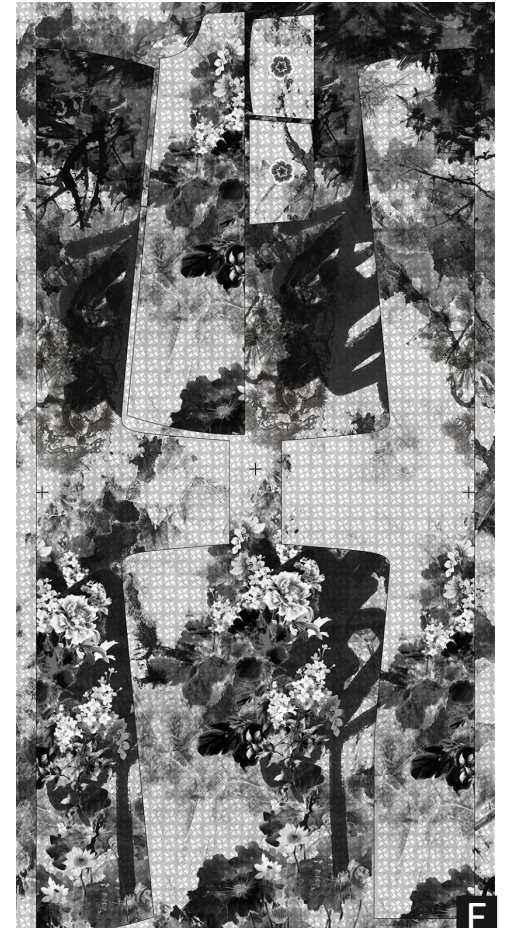
Six pieces of experimental men's cheongsam prototypes were created to demonstrate and examine the theoretical and technological know-how through hands-on practices. Through the actual practices, the design possibility and technical limitations of the reinvented practice were consolidated.



The digital portfolio of the design collection is available at

<https://www.hongkongcheongsam.com/relevant-reading>

Research Methods



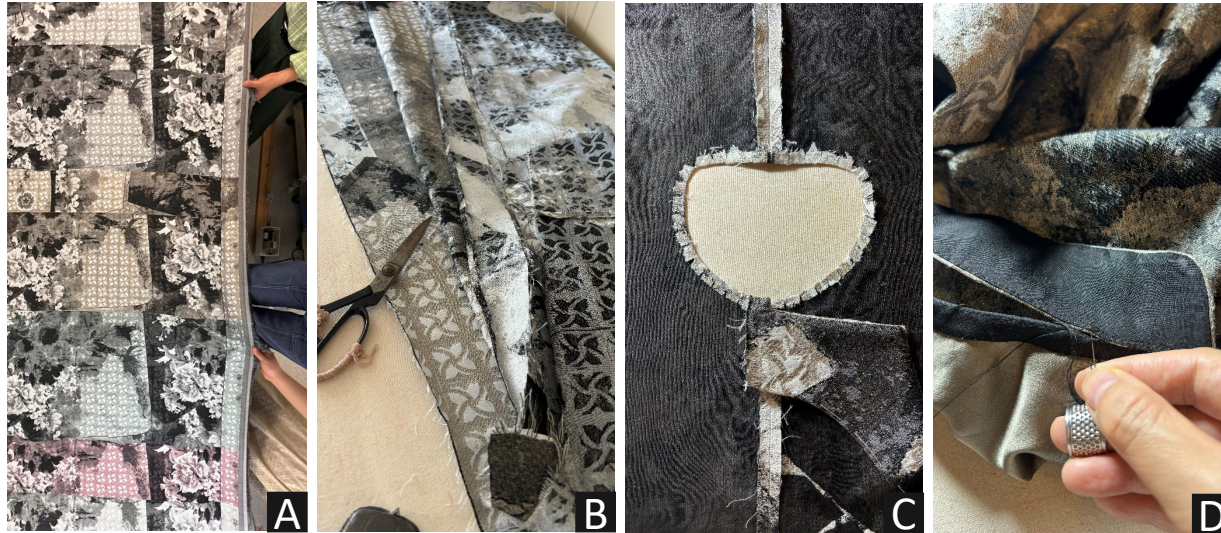
A. Subtheme titled *Connecting Thousands of Homes* developed.

B and C. The design team conducted field visits to several iconic public housing estates in Hong Kong, interviewed the residents, and recorded the estates with photographs and videos for design ideation and development.

D. Pattern, illustration, production drawings, and placement design on the garment pattern template.

E. Weaving marker with placement pattern matching generated through the design model.

Research Methods



A. Inspection of sample yardages yielded from colour combination and weaving variable testing.

B-D. The entire set of patterns was woven with a digital jacquard machine and then cut and tailored with traditional men's cheongsam craftsmanship.

E and F. Prototype on model, depicting surface pattern matching with nonrepetitive placement design achieved with the digital design practice.

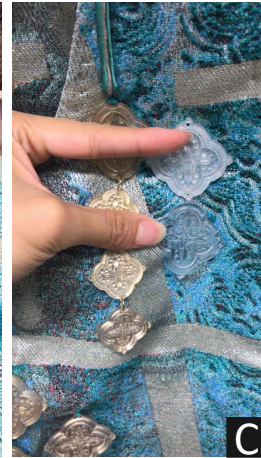




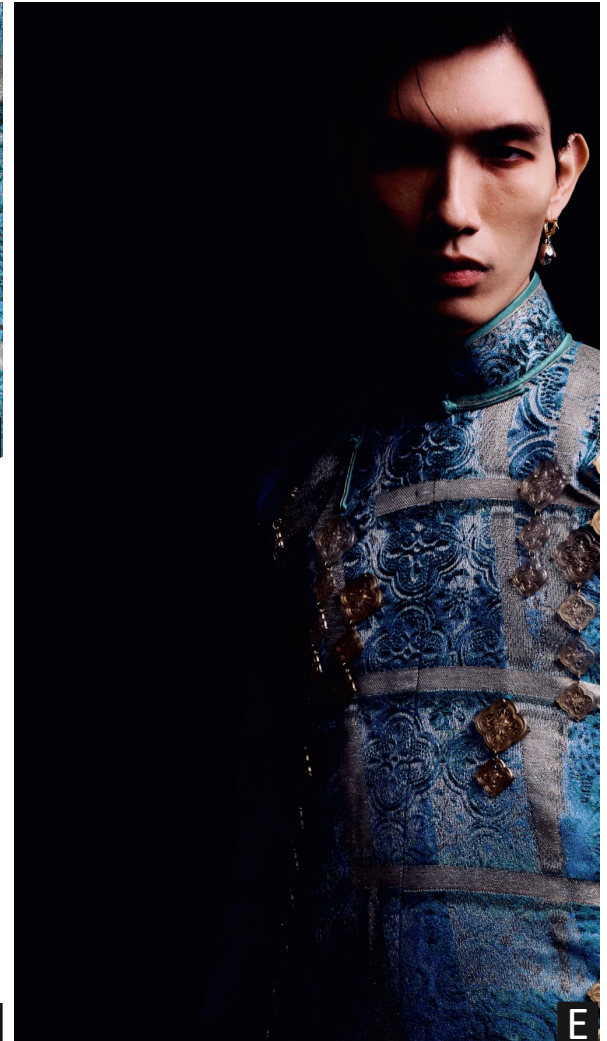
D. Pattern, illustration, production drawings, and placement design on the garment pattern template.

Weaving marker with placement pattern matching generated through the design model.

Research Methods

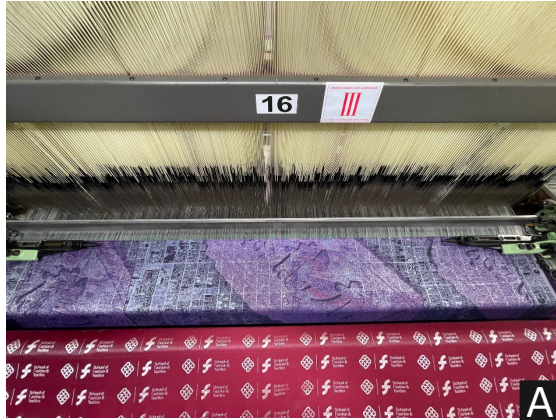


- A. Sample yardages obtained from colour combination and weaving variable testing.
- B. The entire set of patterns with confirmed weaving variables was woven using a digital jacquard machine.
- C. Evaluation of 3D-printed embellishments on the cheongsam.
- D-E. Prototype on a model exhibiting surface pattern matching with nonrepetitive placement design achieved with the digital design model.



E. Weaving marker with placement pattern matching generated through the design model.

Research Methods

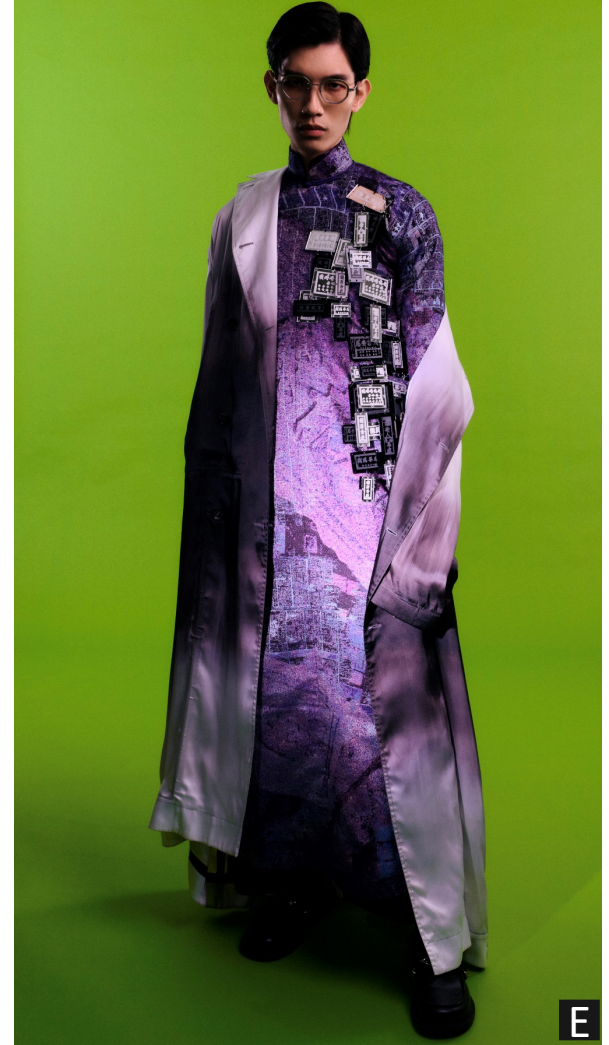


A. The entire set of patterns with confirmed weaving variables was woven using a digital jacquard machine.

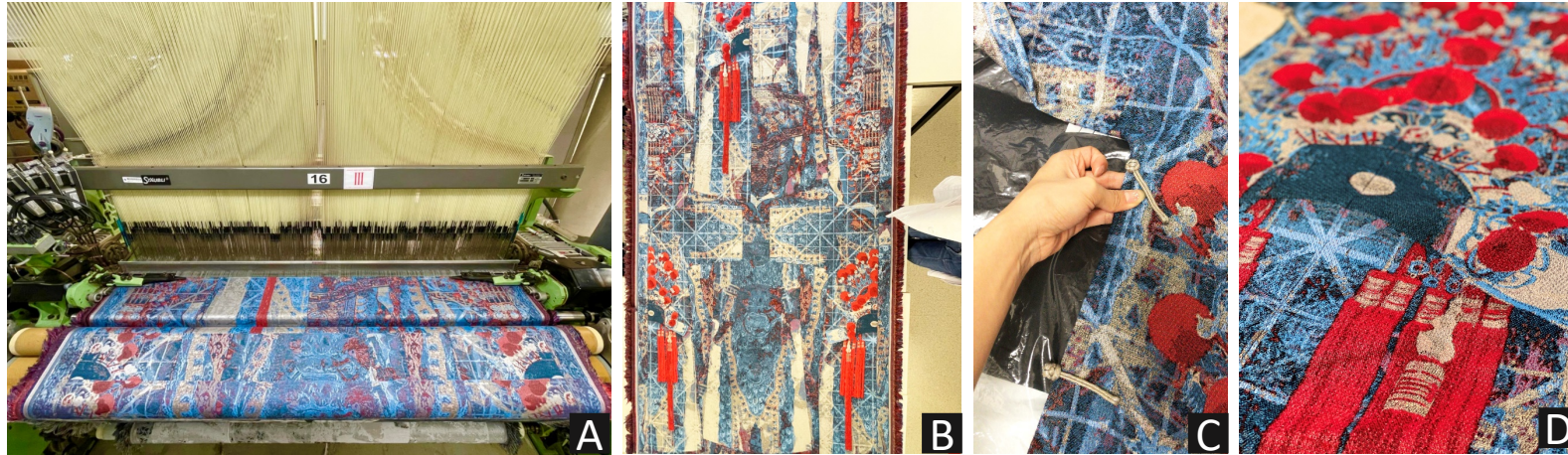
B. Application of reinforcement tapes along the bias-cut edges on the technical back side of the pattern pieces.

C. Sewing of laser-engraved embellishments.

D and E. Prototype on model, exhibiting surface pattern matching with nonrepetitive placement design achieved with the digital design model.



Research Methods



A. The entire set of patterns with confirmed weaving variables was woven using a digital jacquard machine.

B. Inspection of the fabric before cutting and sewing.

C. Sewing straight buttons in the style of traditional men's cheongsam craftsmanship.

D. The surface pattern was carefully matched across panels.

E and F. Prototype on model, exhibiting surface pattern matching with nonrepetitive placement design achieved with the digital design model.



Research Methods

Peer-review and Evaluation

In addition to the team's subjective first-hand interpretations, the evaluation of practices and prototypes was triangulated by the master tailors and listed successors of the ICH through interpretative phenomenological analysis. Semi-structured interviews were employed to collect in-depth insights, while open coding, comparative analysis, and thematic coding was adopted for content analysis. The implications for the refinements of the theoretical framework and design and development model were considered.

Research Outcomes, Findings & Further Research

Research Outcomes and Findings

- This research investigated the current design and development practice of Hong Kong men's cheongsam and summarised the underlying challenges that hinder designers and the new generation of ICH successors from developing novel designs while preserving the authentic dress form of men's cheongsam. The key challenges in this process include 1) the tacit nature of pattern development principles, 2) limited latitude in customised design at the textile level, and 3) excessive material consumption due to the pattern-matching requirement.
- Addressing the current challenges, the research formulated a digitalised men's cheongsam design and development framework and process model with the adoption of an algorithmic garment pattern generation system and CAD/CAM technologies. The digitalised system enables designers and the new generation of ICH successors to develop customised patterns matching men's cheongsam with the traditional dress form and authentic men's cheongsam structures.
- By interviewing veteran master tailors, registered ICH bearers, and scholars as well as performing a relics inspection, the study demystified the complex and latent pattern development principles into a set of algorithmic formulas, which only require four key body measurements. A digital system translates the four measurements into complete sets of men's cheongsam garment pattern markers, which significantly reduces the yardages needed for pattern matching. The system enables designers to create digital customised and pattern-matching designs and output the entire set of garment pattern through the digital jacquard weaving technology.
- The limitations and specific design considerations of the reinvented design and development practice were identified through a series of actual practices, including 1) limitations of wrap yarn materials, 2) limitations of weaving structure compatibility, 3) garment pattern deformation, and 4) limitations of production volume.

Research Outcomes, Findings & Further Research

Research Outcomes and Findings

- A series of research prototypes were created to demonstrate the design possibility extended and the respective technical limitations of the reinvented practice. The creations were collected by WorldSkills Museum, Hong Kong Heritage Museum, and an ICH protection organisation as permanent collections, serving as research specimens and exhibits for future investigations and research-finding disseminations.
- The data archive and the evaluation record of the practices will be shared in the professional circle and serve as references for other digitalised design and development practices, digitalisation of ICH preservation, and future research of relevant disciplines.

Further Research

- Due to the limitations of project duration and resources, this project only covered the pattern sets of unlined, lined, and padded men's cheongsams. Further study is suggested in succession to this research to address other dress forms covered by the Hong Kong Cheongsam Making Technique, including women's discreet under-flap cheongsam, women's modern cheongsam, *makwa* (traditional Chinese riding jacket), and the corresponding derivative variations in diverse shapes of front flap, collar, sleeves, etc.

Research Dissemination

The research led to the generation of a series of deliverables, which have been delivered to the public and professional circles, including specialist research teams and members of the Hong Kong Cheongsam Association (HKCA), Hong Kong Museum of History (HKMoH), Hong Kong Heritage Museum (HKHM), Museum of Contemporary Art & Planning Exhibition, Guangzhou Museum of Art, Art Museum of Nanjing University of the Arts, Hangzhou Gongwang Art Museum, National Centre for the Performing Arts, and the academia in diverse forms of dissemination, including scholarly articles, research seminar presentations, thematic talks, physical exhibitions, and exhibition editorials.

Please see the details of the public dissemination of the research in the following pages.

Research Dissemination

Conference Paper – IASDR Congress 2023

Organisers: International Association of Societies of Design Research

Co-organisers: Politecnico di Milano

The research plan, methodology, and progress results obtained were presented at the 10th Congress of the International Association of Societies of Design Research (IASDR Congress 2023) at Politecnico di Milano between 9 and 13 October 2023.

The interdisciplinary design research conference assembled an inclusive group of design researchers, educators, industrialists from diverse design disciplines.

Conference proceedings DOI:
doi.org/10.21606/iasdr.2023.800, ISBN: 978-1-912294-59-6 is accessible at <https://dl.designresearchsociety.org/conference-volumes/59/>.

Digitalized Intangible Cultural Heritage Preservation – Reinventing the Design Practice of Hong Kong Men's Cheongsam

Haze, Ng***, Tracy, Mok*, Tao, Hua*
*School of Fashion and Textiles, The Hong Kong Polytechnic University
hazekh.ng@polyu.edu.hk*



Life-changing design

Abstract

Hong Kong Cheongsam Making Technique is an important and critically endangered intangible cultural heritage (ICH) of Hong Kong. Its high-standing cultural value and essentiality of urgent preservation have been authenticated by the progressive inscriptions of the regional and national representative list of ICH. However, the current inheritance based on the conventional practice, especially that of men's cheongsam, is considered ineffective. A practice reinvention is therefore needed.

Digitalization and computer-aided design and manufacturing (CAD-CAM) technologies provide a feasible approach to reinvent the practice. With the project title **Digitalized Intangible Cultural Heritage Preservation – Application of Computer-aided Pattern Generation and Digital Jacquard Weaving Technology in Reinventing Men's Cheongsam Design and Development Practice**, this participatory practice-led constructive design research aims to translate the implicit knowledge of the ICH bearers and veteran tailors into systematic formulas and algorithms through a triangulated and reflective study. The key determining entity and reliance in the traditional practice can be prospectively transferred from the retiring tailors to the lasting systems and data archives for a more sustaining preservation. This paper addresses the conference sub-theme **[CHANGING] Heritage** and reports on the research plan and current progress of the project.

Keywords: Hong Kong Cheongsam Making Technique; Men's Cheongsam; Intangible Cultural Heritage Preservation; Digitalization

Project Objectives

This project attempts to apply digital technologies to reinvent the design and development practice of men's cheongsam with an algorithmic approach. Four project objectives are structurally determined with an organization around theory, technology, practice, and implication with respect to the project phases. The objectives are as follows:

- 1) To investigate the current men's cheongsam design and development practice and construct a theoretical framework and design process model from algorithmic perspective;
- 2) To develop digitalized systems for algorithmic pattern generation and integrated design development with the adoption of CAD-CAM technologies;
- 3) To conduct digitalized men's cheongsam design practices and create research prototypes with the systems developed and
- 4) To evaluate the design practices and research prototypes to provide implications for pragmatic improvement and application of digitalized practice beyond the academia.

Project Structure

Based on the objectives determined, the project is structured with four major phases as follows:

- Phase 1 - Digitalized Men's Cheongsam Theoretical Framework and Design Process Model Development;
- Phase 2A - Algorithmic Men's Cheongsam Pattern Generation System Development;
- Phase 2B - Integrated Men's Cheongsam Design System Development;
- Phase 3 - Digitalized Men's Cheongsam Design Practice; and
- Phase 4 - Evaluated and Implication Consolidation.

Acknowledgements

The work described in this paper was fully supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. PolyU15610922).

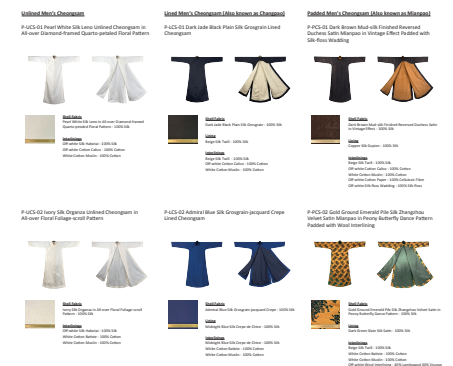
Project Period: 1 Jan 2023 - 31 Dec 2025

Current Progress

The on-going project is currently at its early stage. While the research tasks of Phase 1 are being implemented and summarized, the feasibility of the proposed approach was initially tested with preliminary trials for the development of Phase 2. This poster showcases part of the outcomes attained from the participatory Men's Cheongsam Tailoring Study of Phase 1. For more details and the progress of the other parts, please refer to the paper in the digital proceedings.

Phase 1 - Men's Cheongsam Tailoring Study

The research team practiced Hong Kong men's cheongsam making technique under the guidance of two registered ICH bearers. In the training, which consist of approximately 400 hours of practical sessions, the making procedures, craftsmanship and structural variations of unlined, lined and padded cheongsam were studied. A total number of six cheongsams were tailored, including two unlined, two lined, one wool interlining padded and one silk-floss wadding padded cheongsam. The prototypes created from the study are as below. The craftsmanship specifications, pattern development formulas and practical know-how will be triangulated with the results summarized from the parallel retail and prototype study in Phase 1.



An onsite poster display at Politecnico di Milano

Research Dissemination

Research Seminar – Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar

Organiser: School of Fashion and Textiles, the Hong Kong Polytechnic University

Co-organisers: Hong Kong Cheongsam Association and The Fashion Gallery

Education Partner: The Fashion Archive of the Hong Kong Design Institute

Supporting Organisation: Hong Kong Museum of History, Hong Kong Heritage Museum, Sustainable Fashion Apparel Association, and Handmade by Royce

The research progress and findings were presented in a research seminar titled 'Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar' at PolyU on 4 Aug 2023, with 162 onsite participants.

The seminar assembled an inclusive group of cheongsam preserving parties, including HKCA, ICHO, HKMoH, HKHM, SCRC, Cheongsam Connect, Shanghai Tailoring Worker General Union, veteran cheongsam masters, tailors, cheongsam relic owners and donors, researchers, academics, university students, fashion designers, and the general public.

Organizer: 主辦單位
THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

School of Fashion & Textiles
時裝及紡織學院

Awakening the Classic Poise

Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar

4.8.2023
14:30 - 16:30

ST111 Lecture Theatre, 1/F
Ng Wing Hong Building (ST Wing)
伍永康樓一樓 ST111 演講廳

Language | 粵語
語言 | 粵語

Free Admission
費用全免

Scan to Register
線上登記

<https://forms.gle/G6Zoa1V87ps9H9>

Funding Body 資助單位
香港獨立媒體網
香港獨立媒體網
香港獨立媒體網

Co-organizers 協辦單位
香港時裝協會
香港時裝協會

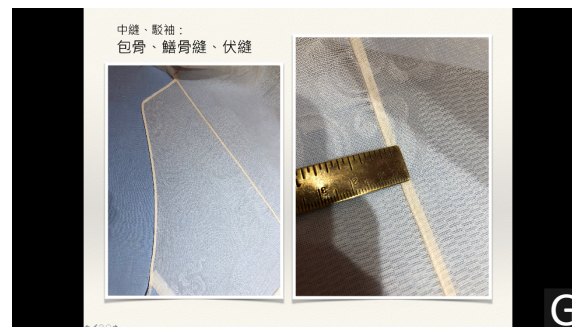
Education Partner 教育伙伴
THE FASHION ARCHIVE
THE FASHION ARCHIVE

Supporting Organizations 支持單位
香港歷史博物館
香港歷史博物館
香港歷史博物館

香港男裝長衫工藝及
非遺傳承研討會
經典 恢弘

Research Dissemination

Research Seminar – Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar



Sessions and Speakers

- A. Welcome Address by the School of Fashion and Textiles of PolyU | Prof Joanne Yip | Associate Dean
- B. Presentation by the Hong Kong Cheongsam Association | Ms Eunice Lee | Executive Committee Member
- C. Presentation by the Hong Kong Heritage Museum | Mr Brian Lam | Museum Director
- D. Presentation by the Hong Kong Museum of History | Mr Ng Chi Wo | Museum Director and Dr Brenda Li | Project-based Cheongsam Researcher
- E. Presentation by the School of Fashion and Textiles of PolyU | Dr Haze Ng | Assistant Professor
- F. Presentation by the Fashion Archive of the Hong Kong Design Institute | Dr Arthur Chan | Archivist
- G. Presentation by the Practicing Cheongsam Tailor (Video) | Ms Royce Chau | Founder of Handmade by Royce and Tailor

Research Dissemination

Research Seminar – Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar



Guests of the Panel Discussion

Dr Brenda Li | Advisor of Hong Kong Cheongsam Association

Dr Liu Tik Sang | Consultant of South China Research Centre of the Hong Kong University of Science and Technology

Master Lau On Hing | Veteran Cheongsam Master Tailor and HKCA Registered ICH Bearer

Master Chun Cheung Lam | Veteran Cheongsam Master Tailor and HKCA Registered ICH Bearer

Ms Eunice Lee | Project-based Cheongsam Curator of the Fashion Archive of the Hong Kong Design Institute

Dr Haze Ng | Facilitator and Principal Investigator of The Craftsmanship of Hong Kong Men's Cheongsam – Archive, Analysis, Inheritance, and Implementation

- A. Panel discussion on the transmission of the Hong Kong Cheongsam Making Technique
- B. Master Fung Yau Choi, Chairman of HKCA, shared his experience in ICH transmission
- C. Cheongsam tailoring practitioners shared their views on ICH transmission
- D. The seminar assembled an inclusive group of professional circles and the general public.

Research Dissemination

Research Seminar – Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar

The seminar recording has been published on various platforms after the review by ICHO. Thus far, the video has accumulated 210 views on the project's YouTube channel.



Awakening the Classic Poise: Hong Kong Men's Cheongsam Making Technique and Intangible Cultural Heritage Inheritance Seminar

Accessible at the Digital Research Archive

<https://www.hongkongcheongsam.com/projects/seminar-01>

and

the project's YouTube channel

https://www.youtube.com/watch?v=Zmnw9_gAhAA

Research Dissemination

Thematic Talk – The Hong Kong Cheongsam Story

Organisers: Hong Kong Public Libraries, LCSD edutainment channel, 101 Academy, and the Chinese Culture Promotion Office

The novel design and development model, reinvented practice, and research prototypes were presented in a thematic talk titled ‘The Hong Kong Cheongsam Story’ of the Hong Kong Memory 2024/25 Talk Series at the City Hall Public Library on 2 Nov 2024, with 90+ onsite participants.

The talk led to the assembly of an inclusive group of cheongsam-preserving parties, including HKCA, veteran cheongsam masters, researchers, academics, university students, and the general public.

For event details, please visit the Hong Kong Public Libraries website Accessible at <https://www.hkpl.gov.hk/en/extension-activities/event-detail/241883/hong-kong-cheongsam-story>

Hong Kong Cheongsam Story

Date: 2024/11/16 (Saturday)
Time: 3:00 p.m. to 5:00 p.m.
Venue: City Hall Public Library (Extension Activities Room)
Speaker: Dr Haze Ng
Organiser: Hong Kong Public Libraries
Remarks: Talk conducted in Cantonese. Limited seats. Free admission by phone at 2921 2508 from 2.11.2024 (Saturday).
(Video Recording URL <https://www.hkpl.gov.hk/HKMChongsamStory> would be available for access from 7 March 2025 12:00 p.m.)

If Tropical Cyclone Warning Signal No. 8 or above or a Black Rainstorm Warning Signal or "extreme conditions" announced by the Government is in force 3 hours before the event commences, the event will be cancelled or postponed.

Enquiry Telephone Number: 2921 2508

The popularity of Hong Kong’ s cheongsam culture can date back to the early 20th century when politicians, merchants, teachers and students, ladies of prominent families as well as singers, film stars and Chinese opera performers began to wear the dress. With a large number of tailors coming to Hong Kong in the late 1940s, the cheongsam became a fashionable garment that was highly sought after in the 1950s and 1960s. Today, after a century’ s passing down and changes along the way, the cheongsam remains hugely popular in Hong Kong. In this talk, you will learn more about the cheongsam for men and women in Hong Kong, including its history, craft, legacy, the change and continuity in terms of social practices, as well as its preservation as an intangible cultural heritage.

This subject talk is one of the events of The 4th Guangdong-Hong Kong-Macau Greater Bay Area Culture and Arts Festival. Hong Kong is hosting the festival for the first time, organising and coordinating 260 performances and exchange activities to be held across the "9+2" cities of the Greater Bay Area. The festival aims to showcase the vibrant and diverse cultural richness of the region and foster cultural exchange and cooperation among the cities. For detailed information about the festival, please visit www.gbaxlo.gov.hk.

The talk series is also one of the activities in the Chinese Culture Promotion Series. The LCSD has long been promoting Chinese history and culture through organizing an array of programmes and activities to enable the public to learn more about the broad and profound Chinese culture. For more information, please visit www.lcsd.gov.hk/en/ccpo/index.html

Research Dissemination

Thematic Talk – The Hong Kong Cheongsam Story

The talk recording has been published on the YouTube channel of the Hong Kong Public Library and archived in the Hong Kong Memory Archive of the City Hall Public Library. Thus far, the video has accumulated 689 views on Hong Kong Public Library's YouTube Channel.

The poster is for a talk series event. At the top left, it says '【香港記憶講座】改變與不變：香港長衫故事' and '2024/25 講座系列 Talk Series'. The top right features the 'HONG KONG MEMORY 香港記憶' logo. The main title is '16.11.2024 星期六 Sat 改變與不變：香港長衫故事 Hong Kong Cheongsam Story'. The speaker is 'Dr Haze Ng', Assistant Professor at the School of Fashion & Textiles, The Hong Kong Polytechnic University, and a Committee Member of the Hong Kong Cheongsam Association. The time is '下午3時至下午5時' (3:00 p.m. - 5:00 p.m.) and the venue is '大會堂公共圖書館 (推廣活動室)' (City Hall Public Library (Extension Activities Room)). On the right, there is a photo of three women in cheongsams. The bottom of the poster has logos for the Leisure and Cultural Services Department, Hong Kong Public Libraries, and other partners like 'edutainment CHANNEL' and 'lol academy'.

The Hong Kong Cheongsam Story

Accessible at the Hong Kong Public Library YouTube channel

https://www.youtube.com/watch?v=BgF2UXCe_IY

Research Dissemination

Thematic Talk – The Hong Kong Cheongsam Story

The digitalised design and development model, actual design practice, research prototypes, and reflection of the practices were presented in the thematic talk. The potential of the digitalisation and application of advanced technologies in ICH preservation was discussed with the onsite participants.



The Hong Kong Cheongsam Story

Accessible at the Hong Kong Public Library YouTube channel:

https://www.youtube.com/watch?v=BgF2UXCe_IY

Research Dissemination

Thematic Talk – Intangible Cultural Heritage Preservation: The Hong Kong Cheongsam Making Technique

Organisers: Royal College of Art and School of Fashion and Textiles

Co-organised by the Royal College of Art and School of Fashion and Textiles, a group of academics, researchers, and postgraduate students shared their research projects and approaches.

The research methodology and preliminary findings were presented in a thematic talk titled 'Intangible Cultural Heritage Preservation: Hong Kong Cheongsam Making Technique' in the RCA-SFT Research Seminar at the Royal College of Art on 4 Apr 2023.



Research Dissemination

Exhibition – The 2024 Hong Kong-Macao Visual Art Biennale Exhibition Series

Organisers: The Hong Kong Heritage Museum, Hangzhou Gongwang Art Museum, Art Museum of Nanjing University of the Arts, National Centre for the Performing Arts, Guangzhou Museum of Art, and Museum of Contemporary Art & Planning Exhibition.

A collection of eight design prototypes – *The Compound Culture of Hong Kong* – were developed with the reinvented practice and traditional cheongsam craftsmanship. The collection covers both men's and women's cheongsams in diverse forms under four subthemes:

- 1) Connecting Thousands of Homes – Public Housing Estates
- 2) Greatness Lies in the Capacity – Chinese Tenement
- 3) Arose at the Opportune Time – Kowloon Walled City
- 4) Multidimensional Convergence – Bamboo Shed Theatre



Display set at Hangzhou Gongwang Art Museum.

Research Dissemination

Exhibition – The 2024 Hong Kong-Macao Visual Art Biennale Exhibition Series

The creations were selected and showcased in the 2024 Hong Kong-Macao Visual Art Biennale Exhibition Series held between 18 October 2024 and 30 September 2025 at Hangzhou Gongwang Art Museum, Art Museum of Nanjing University of the Arts, National Centre for the Performing Arts, Guangzhou Museum of Art, and Museum of Contemporary Art & Planning Exhibition.

A digital portfolio was created to showcase the development process of the collection. The portfolio is accessible at https://www.hongkongcheongsam.com/files/ugd/35c828_017ee7cfd6c84a329361fd71ef46c2b8.pdf

Aligning with the exhibitions, the research methodology, design process, and reflection were shared with the researchers of the organising museums.

The collection will be part of the Hong Kong Heritage Museum's permanent collection after the exhibition tour.



Display set at the Art Museum of Nanjing University of the Arts.

Research Dissemination

Exhibition – Palace Museum Collection x The Hong Kong Intangible Cultural Heritage Exhibition

Organisers: Hong Kong Publishing Federation Limited, Shenzhen Reading Month, and SZ&HK Co-Reading.

A pair of design prototypes – *Mountain Jade* – were developed with the reinvented practice and traditional cheongsam craftsmanship. The creations were selected and showcased in the Palace Museum Collection x Hong Kong Intangible Cultural Heritage Exhibition of the Shenzhen Reading Month SZ&HK Co-Reading 2024 at Shum Yip Upperhills, Shenzhen, China, between 2 Nov 2024 and 23 Nov 2024; the extended exhibition was held in Hong Kong between 18 Apr 2025 and 27 Apr 2025.

Aligning with the exhibition, a thematic talk and cheongsam craftsmanship demonstration were co-hosted by Prof. Haze Ng and Master Fung Yau Choi.

The pair was collected by WorldSkills Museum and Hulu Culture – an ICH protection organisation – as permanent collections.



Display set at Palace Museum Collection x Hong Kong Intangible Cultural Heritage Exhibition .