LUSHAN (SARINA) SUN, Ph.D. Curriculum Vitae

Assistant Professor
Institute of Textiles and Clothing
The Hong Kong Polytechnic University
Hung Hom, Kowloon, Kong Kong, China

QT 703, Q Core, 7/F
Office : (852) 2766 6446
Email: sarina.sun@polyu.edu.hk
Website: www.sarinasun.com

RESEARCH INTERESTS

Design Cognition | Human-computer Interaction | 3D Printing Applications & Material | Direct Digital Manufacturing | Digital Textile Printing | 3D Body Scanning & Simulation Sustainable Design Methods | Design Research Methods

EDUCATION

Ph.D. (2015) UNVERSITY OF MISSOURI, USA
Department of Textile & Apparel Management
Emphasis: Textile & Apparel Management | Support area: Digital technology

M.S. (2012) KANSAS STATE UNIVERSITY, USA
Department of Apparel, Textiles & Interior Design
Emphasis: Apparel Product Development

B.S. (2008) LOUISIANA STATE UNIVERSITY, USA
Department of Textiles, Apparel & Merchandising
Emphasis: Apparel Design | Minor: Communication Study

CERTIFICATION/ TRAINING

- *Center for the Digital Globe Graduate Certificate*, University of Missouri, USA (2014)
- *Certified Shima Seiki 3D Knitting training*, North Carolina State University, USA (2018)
- *OptiTex (2D/3D CAD/CAM) program training*, hosted by OptiTex & Nike, USA (May 2017).
- *Vidya (2D/3D CAD/CAM) and RAMSIS (Automotive 3D CAD/CAM) training,* Human Solutions, hosted by CADS, Auburn University, USA (2017).
- *Autodesk Fusion 360 (3D CAD) training,* Auburn University, USA (2015).

PROFESSIONAL EXPERIENCES

ACADEMIC

Assistant Professor, The Hong Kong Polytechnic University, Hong Kong, China (present)
Assistant Professor, Auburn University, Auburn, AL, USA (2015-2018)
Graduate Instructor, University of Missouri, Columbia, MO, USA (2014-2015)
Graduate Research Assistant, Knipschild Design & Research Lab, Kitty Dickerson Technology Lab, University of Missouri, Columbia, MO, USA (2012-2014) & KSU Historic Textile & Costume Museum, Kansas State University, Manhattan, KS, USA (2010-2011)
Graduate Teaching Assistant, University of Missouri, Columbia, MO, USA (2012-2014) & Kansas State University, Manhattan, KS, USA (2010-2011)

INDUSTRY

Intern, *Zhenxin Dyeing Factory* (振心染坊), Chinese Intangible Heritage base for Nantong Blue Calico (蓝印花布), Nantong, Jiangsu, China (2010).
Assistant Manager, KOHL'S, Lake Charles, LA (2009)
Intern, KOHL'S, Baton Rouge, LA (June-August 2008)
Intern*, Shen Shou Art Museum* (exhibits traditional Chinese embroidery Shen Xiu), Nantong,

Jiangsu, China, (2007)

AWARDS & RECOGNITION

Nominated Paper of Distinction Award (2016-2018)
Lectra Outstanding Award: Best of Show (2015)
Alvanon Creative Design Award (2015)
Sustainable Design in Educators for Socially Responsible Apparel Business (ESRAB) Award (2012)
Vinci Award for Excellence in Research Emphasizing Technology (2014)

REFERRED JOURNAL PUBLICATION

Liu, J. **Sun, L.**, Xu, W., Wang, Q., Yu, S., & Sun, J. (2019). Current advances and future perspectives of 3D printing natural-derived biopolymers. *Carbohydrate Polymers, 207, 207-316 (JIF: 6.04/Q1)*.

Sun, L. & Zhao, L. (2017). Technology disruption: Exploring the changing roles of designers, makers, and users in the fashion industry. *International Journal of Fashion Design, Technology & Education* (SJR: 0.28/Q1). DOI: 10.1080/17543266.2018.1448462.

Sun, L. & Zhao, L. (2017). Envisioning the 3D printing era: A conceptual model for the fashion industry. *Fashion and Textiles Journal, 4*(25), 1-16. (SJR: 0.33/Q1). DOI:10.1186/s40691-017-0110-4

Liu, J. **Sun, L.,** Wang, Q. & Sun, J. (2017). The advancements and prospects of 3D printing material using biomass-based composites. *Biotechnology & Business, 3, 68-81.*

Sohn, M. & **Sun, L.** (2013). An exploratory study of virtual fit testing using 3D virtual fit models and garment simulation technology in technical design. *3D Body Scanning Technologies 4th International Conference Proceeding*. DOI:10.15221/13.067

PUBLICATION UNDER REVIEW

Sun, L. & Parsons, J. Design cognition in 3D modeling wearable product for apparel designer. Submitted to *Design Studies* (JIF: 2.78/Q1).

Ji, C., **Sun, L.** Sun, J. & Wang, Q. 3D Printing Bio-based Filament: Developing cellulose nanofibers for PLA composite. Submitted to *Materials and Design* (JIF: 3.389/Q1).

Wu J., Tao Y. L., Geng, A. Xie, R., Zhu, D. Ali S. S., **Sun, L.** & Sun J. Enhancing biocellulose property: Acetylation of bacterial cellulose using N-methylimidazole as a catalyst. Submitted to *Carbohydrate Polymers* (JIF: 6.04/Q1).

PUBLICATION IN PROGRESS

Sun, L. Parametric design: Exploring 3D modeling wearable apparel using 3D printing. Submitting to *3D Printing and Additive Manufacturing* (JIF: 3.389/Q1).

Cui, T., **Sun, L.** & Charttaraman, V. Material and structure development in FDM 3D printing integrated activewear. Submitting to *3D Printing and Additive Manufacturing* (JIF: 3.389/Q1).

Sun. L. & Parsons, J. The perception of hands-on experience for designers in digital environment. Submitting to *International Journal of Technology and Design Education* (CiteScore: 2.13/Q1).

Cui, T., **Sun, L.** & Charttaraman, V. Disruption in digital fabrication: Examining users' perceptions of a 3D printed wearable product

Sun. L. Exercising the left and the right brain: A case study of teaching 3D printing technology in apparel design curriculum.

Sun. L. Perspectives on cross-disciplinary collaboration: A case study for apparel and industrial designers in developing 3D printed apparel.

DESIGN EXHIBITIONS

REFERRED (International)

Cui, T. & **Sun, L.** (under review). Infinite vitality: 3D printing hooded sweatshirt. 2019 *International Textile & Apparel Association (ITAA) Annual Conference*, Las Vegas, NV, USA.

Sun, L. (November 7, 2018). Instilled: 3D printing elastic lace. Ensemble exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 6-9, Cleveland, OH, USA. Acceptance rate: 38%.

Sun, L. & Starkey, S. (November 7, 2018). 3D printing for a modern bag. Accessory exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 6-9, Cleveland, OH, USA. Acceptance rate: 38%.

Cui, T. & **Sun, L.** (November 8, 2018). Hybrid comfort: 3D printing interwoven. Accessory exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 6-9, Cleveland, OH, USA.

Walp, T. & **Sun, L.** (November 8, 2018). Designed for your day: 3D printing in bridal shape wear. Accessory exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 6-9, Cleveland, OH, USA.

Sun, L. (November 16, 2017). Daring to sprint: 3D printing textile. Active wear ensemble Exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 14-18, St. Petersburg, FL. USA. Acceptance rate: 38%.

Cui, T. & **Sun, L.** (November 17, 2017). Smooth dynamic: Assistive glove for wheelchair user. Assistive tool with 3D printing integration exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 14-18, St. Petersburg, FL. USA. Acceptance rate: 38%.

DuPuis, J. & **Sun, L.** (November 17, 2017). CIRCUitS. Wearable technology ensemble to be exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 14-18, St. Petersburg, FL. USA. Acceptance rate: 38%.

Sun, L. (November 10, 2016). Hyperresonance. Digitally printed textile ensemble exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 8-11, Vancouver, CA. Acceptance rate: 37.5%.

Sun, L. & Parsons, J. (November 12, 2015). Renascence. Digitally printed textile ensemble exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 9-13, Santa Fe, NM. Acceptance rate: 37.5%. **Awarded Lectra Outstanding Award: Best of Show & Alvanon Creative Design Award.**

Sun, L. & Parsons, J. (November 15, 2014). Accessing Axis. 3D printed and digitally printed textile ensemble exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, November 12-16, 2014, Charlotte, NC. Acceptance rate: 43%.

Sun, L. & Haar, S. (October 16, 2013). Naturally Refined Series: Rippled. Fiber art exhibited at *International Textile & Apparel Association (ITAA) Annual Conference*, October 15-18, 2013, New Orleans, LA. Acceptance rate: 38.5%.

SOLO EXHIBITION

Sun, L. (March 5-24, 2012). Naturally Refined 源: Sustainable Fiber Art Exhibition. Master thesis solo exhibition: fiber art garment collection showcased through exposition format. William T. Kemper Art Gallery, K-State Student Union, Manhattan, KS. USA.

EVENT DEVELOPMENT

(National)

Sun, L. (Founder & Event Chair). The Future of Making: Digital Fabrication Symposium for Designers, Makers, Users, and Educators, February 20-21, 2017. Auburn, AL, US.

BOOK CHAPTER

IN PRESS

Sun, L. (in press). Additive manufacturing technology: Current applications, future trend and challenges. In *Latest Material and Technological Development for Activewear,* Joanne Yip Ed. Elsevier Pub.

GRANTSMANSHIP & CONTRACT (HKD)

EXTERNAL GRANTS

- $56,940—**Sun, L.** (2017). Contract grant for 3D printing application, *Under Armour, US.*
- $11,700—**Sun, L.** (2017). Fusion 360 for teaching 3D generative design in fashion, *Autodesk, US.*
- $46,878—**Sun, L.** (2017). 3D printing equipment crowd sourcing for fashion education, Auburn University, US.

COMPETITIVE INTERNAL GRANTS

- $39,000—**Sun, L.** (2017). *The Future of Making: Digital Fabrication Symposium for Designers, Makers, Users and Educators*, Auburn University, Auburn, AL.
- $78,000—**Sun, L.** & Windham, J. (2015). Exploration of Wearable Product Virtual Design Process and Cognition using 3D Parametric Modeling and 3D Printing Technology. *Intramural Grants Program,* Auburn University, Auburn, AL. USA. Serve as PI.
- $14,430—**Sun, L.** (2015). Accessing axis as an apparel designer: exploring design cognition from visual and haptic experiences in digital 3D imaging for 3D printing technology (Doctoral dissertation research). *Center for Digital Globe Research Fund*, University of Missouri, Columbia, MO.

OTHER GRANTS EXPERIENCES

- $78,000—Sohn, M., Yoon, S., **Sun, L.** (RA) (2013). Communication of sizing and fit: Examining relationship between consumers' perception of body shape preference. *Margaret Mangel Catalyst Fund*, University of Missouri, Columbia, MO.
- $175,500—Hawley, J. M., Sohn, M., Ha-Brookshire, J., **Sun, L.** (RA) & 3 others (2013). Leading the Future of the Retail Industry through Creating Digital/Virtual Student Project Showcases, *MU Interdisciplinary Innovation Fund, Provost Office,* University of Missouri, Columbia, MO.
- $78,000—Sohn, M., Ha-Brookshire, J. & **Sun, L.** (RA) (2012). Examining the effectiveness of 3D virtual fit testing: Focusing on the plus-size apparel product development process. *Mizzou Alumni Association Richard Wallace Research Incentive Grant*, University of Missouri, Columbia, MO.

CONFERENCE PROCEEDINGS & PRESENTATIONS

REFERRED (International)

Cui, T., Charttaraman, V., & **Sun, L.** (expected November, 2019). Disruption in digital fabrication: Examining users' perceptions of a 3D printed wearable product. (accepted). *International Textiles & Apparel Association (ITAA) Annual Conference*. **Invited full paper.**

Sun, L. & Zhao, L. (2018). Special topic—3D printing : The renewable digital fabrication for the fashion industry. *International Textile and Apparel Association (ITAA) Annual Conference*.

Sun, L. & Zhao, L. (2017). The future of making for designers, makers, and users: A conversation between industry and academia. *2017 International Textile and Apparel Association (ITAA) Annual Conference Proceeding*. **Nominated Paper of Distinction Awards.**

Sun, L. & Parsons, J. (2017). Design cognition in 3D modeling wearable product: Exploring challenges and transitions for apparel designers. *2017 International Textile and Apparel Association (ITAA) Annual Conference Proceeding*.

Cui, T. & **Sun, L.** (2017). The age of 3D printing applications for designer and user: A model of developing wearable assistive tool for wheelchair user. *Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Annual Conference*.

Sun, L. & Parsons, J. (2016). Exploring effectiveness of programs and tools for 3D printing wearable product. *International Textile and Apparel Association (ITAA) Annual Conference Proceeding*. Acceptance rate: 45%. **Nominated Paper of Distinction Awards.**

Sun, L. & Lu, S. (2015). The 3D printing era: A conceptual model for the textile and apparel industry. *International Textile and Apparel Association (ITAA) Annual Conference Proceeding*. Acceptance rate: 45%.

Sun, L. & Parsons, J. (2014). 3D printing for apparel design: Exploring apparel design process using 3D modeling software. *International Textile and Apparel Association (ITAA) Annual Conference Proceeding*. Acceptance rate: 45%. **Awarded Vinci Award for Excellence in Research Emphasizing Technology.**

NON-REFERRED (National)

Sun, L. (2017). What does 3D CAD mean for wearable product design? *The Future of Making: Digital Fabrication Symposium for Designers, Makers, Users & Educators*, February 20-21, 2017, Auburn University, Auburn, AL.

Sun. L. & Windham, J. (2017). The age of 3D printing: Exploring 3D parametric design for wearable product. *This is Research Faculty Symposium*, Auburn University, Auburn, AL.

INVITED PRESENTATIONS

(International)

Sun, L. (2017). Advancement and Prospective of Additive Manufacturing in Textile and Apparel. Presentation at Nanjing Research Institute of Additive Manufacturing (3D Printing), May 15, Nanjing, China.

Sun, L. (2017). The era of additive manufacturing: What does 3D CAD mean to designers? Presentation at Digital Media & Animation Department, Art School at Jiangsu University, May 16,

SELECTIVE TEACHING

*Note: newly developed courses indicated with *.*

The Hong Kong Polytechnic University, Hong Kong, China

COURSES Teaching focus: 2D/3D Computer-aided design, Web Design, Fashion Photography

ITC 1200D Introduction to Fashion Presentation (3 hr.)

(undergraduate)

- n=109 (Spring 2019)

Auburn University, Auburn, AL, USA

Teaching focus: 2D/3D Computer-aided Design, Product Development, Portfolio Development

**CADS 4750 Advanced Design: 3D Printing in Wearable Products (3 hr.)*

(undergraduate) *CADS 4500 Portfolio Development for Apparel Designers (4 hr.)*

CADS 3750 Product Development for Apparel Design (4 hr.)

CADS 2770 Computer-aided Design for Apparel Design (4 hr.)

CADS 8990 Research and Dissertation (2 hr.)

(graduate) *CADS 7980 Thesis Research (1 hr.)*

**CADS 7960 Special Topic: Design Research Methods (3 hr.)*

Major Co-Advisor for 1 Doctoral student in Apparel Design, Auburn University, US (2018)

GRADUATE ADVISING Major Advisor for 1 Master student in Apparel Design, Auburn University, US (2018)

Committee member for 3 Master students, Auburn University, US (2016-2018)

SELECTIVE MEMBERSHIPS/REVIEWING SERVICES

- Design Research Society (2017-present)
- Member of International Textiles & Apparel Association (ITAA) (2011-present)

- Paper/Abstract Reviewer for the *Design/Product Development Track, ITAA* (2016-present)
- *Design Abstract Review Committee Member, ITAA* (2016-present)
- *Design Education and Scholarship Committee Member, ITAA* (2014-present)

- Manuscript Reviewer for Textile Research Journal (present)
- Manuscript Reviewer for *Journal of Consumer Sciences* (2018-resent)
- Manuscript Reviewer for *Fashion and Textiles Journal*, Springer (2016-present)
- Manuscript Reviewer for *Revista Industria Textila* (2016-present)

CAD/EQUIPMENTS SKILLS

- 2D CAD: Adobe Illustrator, Adobe Photoshop, Adobe InDesign
- 3D CAD: Rhinoceros, Autodesk Fusion 360, Autodesk Meshmixer, Autodesk 3D Studio Max, Google Sketchup, NetFab (3D printing software)
- 2D/3D CAD/CAM: OptiTex
- Equipments: Kloner3D (FDM 3D printer), Markforged (FDM 3D printer), TC^2 (3D body scanning system), digital textile printer, industrial/home sewing machine

Bio:

Dr. Lushan Sun currently serves as an Assistant Professor at the Institute of Textiles and Clothing at The Hong Kong Polytechnic University. She has a background in both traditional and modern technology-driven wearable product design from the U.S. Considering the potential impact and advantages of various emerging technologies, she currently aims to integrate of direct digital fabrication technology to improve the efficiency and sustainability of the fashion supply chain. Her focuses are interdisciplinary in nature and fall within the realm of human-computer interaction (HCI), specifically design cognition in 2D/3D CAD, and digital fabrication technologies, such as 3D printing (3DP) integration in wearable product development. Her explorations also expanded to specialty material development for additive manufacturing (3D printing), such as bio-mass composites.

Over the last seven years, Dr. Sun's research and designs have been recognized through international awards, design exhibitions, and contract or funds granted. In recent years, her research in 3D printing and HCI has generated positive impact in the fashion design discipline through various international conferences proceedings and presentations, journal publications, invited speaker, special topic seminar, journal reviewer, and track reviewer of an international conference. Due to the tremendous potential impact of modern technologies, Dr. Sun has developed and organized a US national symposium on February 20-21, 2017, Future of Making: The Digital Fabrication Symposium for Designers, Makers, Users, and Educators. Dr. Sun has also since worked with renown global companies like Autodesk and Under Armour in 3D printing integrated product design and interface education. She has also been trained in 3D knitting by knitting professionals at the North Carolina State University. Her network now expands widely in both academic institutions and industry organizations, including Stratasys, Human Solution, Nike, and Massachusetts Institute of Technology.