

# YUMENG HOU

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## EDUCATION

<b>Doctor of Philosophy in Digital Humanities, EPFL</b> <i>Thesis: “EncodingActs: Computational Curation of Embodied Knowledge in Southern Chinese Martial Arts”, Supervisor: Prof. Sarah Kenderdine</i>	Defence in July 2024
<b>Master of Science in Computer Science, EPFL</b> <i>Dissertation: “Visualizing Personal Nutrition Intake and Emotions”, Supervisor: Dr. Pearl Pu</i>	2015 – 2017
<b>Bachelor of Engineering in Digital Media Technology, Zhejiang University</b> <i>Dissertation: “Visualizing Topic Evolutions in Wikipedia”, Supervisor: Prof. Wei Chen</i>	2010 – 2014
<b>Exchange Student in Computer and Systems Sciences, Stockholm University</b>	2013 – 2014

## RESEARCH EXPERIENCE

<b>Doctoral Researcher in Digital Humanities</b> <i>Laboratory for Experimental Museology (eM+), DHI, EPFL</i>	2020 – present
<b>Visiting Scholar</b> <i>Academy of Visual Arts, Hong Kong Baptist University</i>	July – Dec 2022
<b>Research Assistant in Data Visualization</b> <i>Visual Analytics and Intelligence Group, Zhejiang University</i>	2013 – 2015

## PROFESSIONAL EXPERIENCE

<b>Creative Tech Lead, _box Interaction</b> [ <a href="#">website</a> ], Hangzhou, China <i>Led technical innovations, integrating data science with media arts, to empower interactive exhibitions and museums, immersive and multisensory learning spaces, and more.</i>	2019 – 2020
<b>Digital Strategist</b> (part-time), NewStyle Media Group [ <a href="#">website</a> ], Beijing/Hangzhou, China <i>Advisory support on digital transformation and Office Automation (OA) strategies.</i>	2019 – 2020
<b>Technical Product Manager – Media Service PaaS/SaaS</b> , Alibaba Cloud, Hangzhou, China <i>Product Owner for the Real-time Communication (RTC) and Live-streaming SDK; Project Manager and Scrum Master for the R&amp;D of RTC and Live-streaming; business analytics and reporting.</i>	2017 – 2019
<b>Digital Consumer Analyst EMEA</b> , Procter & Gamble, Geneva, Switzerland <i>Automation of business KPI reporting and CRM algorithms for automated email campaigns.</i>	2016 – 2017
<b>Lead Software Engineer &amp; APP Designer</b> , HIBACHI[ <a href="#">website</a> ], Lausanne, Switzerland <i>Co-launched Hibachi project, an IoT lunchbox; Built product from scratch till business validation.</i>	2015 – 2018

## TEACHING EXPERIENCE

<b>Lecturer, Teaching Assistant.</b> DH-404 Cultural Data Sculpting 2021/2022/2023, EPFL	2021 – 2023
<b>Guest Lecturer.</b> Digital Art History 2022, University of Basel	Spring 2022
<b>Supervision.</b> Master’s project on knowledge interface design, EPFL	Fall 2023
<b>Supervision.</b> Master’s project on knowledge graph-based cultural analytics, EPFL	Fall 2021
<b>Supervision.</b> Master’s project on deep learning for multimodal archives, EPFL	Spring 2021
<b>Assistant Lecturer, Teaching Assistant.</b> Cross-Media Data Visualization (Zhejiang university)	2014 – 2015

## GRANTS & AWARDS

EPFL Doc.Mobility grant (2022), a continuation of SNFS’s instrument funded by Swissuniversities and EPFL [[link](#)]  
EPFL-UNIL’s CROSS – Collaborative Research on Science and Society grant (2021) [[link](#)]

Europeana Network Association member grant for attending EuropeanaTech 2023  
Finalist for the best paper award (Paul Fortier Prize) at Digital Humanities Conference 2023

## SELECTED ACADEMIC SERVICE & MEMBERSHIP

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<b>Peer Reviewer</b> for <i>Heritage Science, International Journal of Heritage Studies, Multimedia Tools and Applications, Digital Scholarship in the Humanities, Journal of Open Humanities Data</i> , and <i>Digital Humanities 2023</i>	2022 – present
<b>PhD Representative   Committee Member</b> , Doctoral School of Digital Humanities EPFL	2021.01 – 2023.02
<b>PhD Seminar Organizer</b> , <i>Swissuniversities</i> DH PhD seminar, Dec 2-3, 2021, EPFL, Lausanne	2021.09 – 2021.12
<b>EuropeanaTech &amp; Research Communities Member</b> , Europeana Network Association	2022.03 – present
<b>Member</b> , Association for Computing Machinery (ACM)	2021.10 – present
<b>Member</b> , UNIL-EPFL dhCenter	2020.10 – present

## PUBLICATIONS

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### Publication in Scientific Journals

- Hou, Y.\* & Kenderdine, S. (2024, in press) "Ontology-based Knowledge Representation for Traditional Martial Arts". *Digital Scholarship in the Humanities* (SSCI|AHCI). [preprint]
- Hou, Y.\*, Seydou, F., & Kenderdine S. (2023). "Unlocking a multimodal archive of Southern Chinese martial arts through embodied cues". *Journal of Documentation* (SSCI). doi: 10.1108/JD-01-2022-0027
- Hou, Y.\* & Yuan, L. (2023) "Building a knowledge graph of Chinese kung fu masters from heterogeneous bilingual data". *Journal of Open Humanities Data* (DOAJ), Vol 9, No. 27. doi: 10.5334/johd.136
- Hou, Y.\*, Kenderdine S., et al. (2022). "Digitizing Intangible Cultural Heritage Embodied: state of the art". *Journal on Computing and Cultural Heritage* (SCIE|AHCI), 15(3), pp.1-20. doi: 10.1145/3494837
- Hou, Y.\* (2021). "可及、表达、共鸣: 数字馆藏策展的挑战与方法 [Accessing, Representing, and Transmitting Cultural Heritage through Digital Archives: challenges and opportunities]". *数字人文研究 [Digital Humanities Research]*, 4(1), 77-91. 人民大学出版社. <http://dhr.ruc.edu.cn/CN/Y2021/V1/I4/77>
- Adamou, A.\*, Picca, D., Hou, Y. & Granados-García, P. L. (2023). "The Facets of Intangible Heritage in Southern Chinese Martial Arts: Applying a Knowledge-Driven Cultural Contact Detection Approach". *Journal on Computing and Cultural Heritage* (SCIE|AHCI), 16(3), pp.1-27. doi: 10.1145/3606702
- Alliata, G.\*, Hou, Y. & Kenderdine, S. (2024, in press) "Augmenting access to embodied knowledge archives: a computational framework". *Digital Humanities Quarterly* (ESCI). Under Revision.
- Xia, J., Hou, Y., Chen, Y.V., Qian, Z.C., Ebert, D.S., & Chen, W.\* (2017). "Visualizing rank time series of Wikipedia top-viewed pages". *IEEE computer graphics and applications* (SCIE), 37(2), 42-53. doi: 10.1109/MCG.2017.21

### Peer-reviewed Conference Proceedings

- Hou, Y. (2023). "Co-encoding embodied knowledge in Southern Chinese martial arts: a collaboration between computists, experts, and digital models". *Digital Humanities 2023: Book of Abstracts*. July 10-14 2023, Graz, Austria. doi: 10.5281/zenodo.8107443
- Hou, Y.\*, Kenderdine S. (2022). "Encoding the Whole-of-Environment Knowledge for Intangible Cultural Heritage". *AMPS Proceedings Series, 29.1 - (IN)TANGIBLE HERITAGE(S): Design, culture and technology – past, present, and future*, June 15-17, Canterbury, UK, pp.121-132.
- Adamou, A.\*, Hou, Y.\*, Picca, D.\*, et al. (2021). "Ontology-mediated cultural contact in Southern Chinese martial arts". *Proceedings of the International Joint Workshop on Semantic Web and Ontology Design for Cultural Heritage*. <https://ceur-ws.org/Vol-2949/short2.pdf>
- Picca, D.\*, Adamou, A.\*, Hou, Y., et al. (2022). "Knowledge organization of the Hong Kong Martial Arts Living Archive to capture and preserve intangible cultural heritage". *Digital Humanities 2022*. July 25-29 2022, Tokyo.
- Xia, J., Chen, W.\*, Hou, Y., et al. (2016). "Dimscanner: A relation-based visual exploration approach towards data dimension inspection". In *Proceedings of 2016 IEEE Conference on Visual Analytics Science and Technology (CCF-A)*, pp. 81-90. IEEE. doi: 10.1109/VAST.2016.7883514

## Contributions to Books

Kenderdine, S.\*, Hibberd, L., Shaw, J., Chang, T.Z., & Hou, Y. (2023). "Archery Rites: Re-making Confucian Rites". *Chinese Archery Studies: Theoretical and Historical Approaches to a Martial Discipline*. Springer. doi: 10.1007/978-981-16-8321-3\_13

Hou, Y. (2024, in press). "武學經典之數碼復「活」 [Reliving martial arts classics in the digital era]". 《讀書雜誌》, Joint Publishing HK.

## OTHER TALKS & LECTURES & CONFERENCE PRESENTATIONS

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"Reimagining Cultural Archive Access and Engagement in the Digital Age". Presentation at the *International Symposium on Transformations in Museums through Digital Initiatives*, Jan 12-13 2024, Nanjing University & University Museum and Art Gallery, the University of Hong Kong.

"Building and disrupting the Hong Kong Martial Arts Living Archive: from digital to computational". Invited talk at *the Forum in Digital Preservation of Cultural Heritage*, Jan 5 2024, Renmin University of China, Beijing.

"Datafication: Towards digital transmission of the living heritage of Southern Chinese martial arts". Paper presentation at *The 9th Young Scholars' Forum in Chinese Studies 2023*, Sept 7-8 2023, Hong Kong.

"The (in)accessible embodiment: Unfolding the multifaceted knowledge in traditional martial arts". Paper presentation at *EuropeanaTech 2023*, Oct 11-12 2023, Den Haag, Netherlands.

"Towards Digital Preservation of Traditional Chinese Martial Arts". Keynote speech at *The 4<sup>th</sup> International Martial Studies Conference*, Nov 30 2022, Guangzhou, China.

"Augmenting knowledge exploration using agent-based models: A computational experiment with the HKMALA". Presentation at the *7<sup>th</sup> International Martial Arts Studies Conference*. June 29 - July 2 2022, Lausanne, Switzerland.

"Artificial Intelligence for Cultural Heritage and Computational Archives". Guest lecture in *Digital Art History: Current Trends and Experimental Applications*, University of Basel, April 8 2022.

"Computational Motion Archives", Guest lecture in *Cultural Data Sculpting*, EPFL, 31 March 2022.

"Motion as meaning: Representing embodied knowledge in multimodal cultural archives". Speech at *DHCH@ISR 2021*, June 7-9 2021, Rome, Italy.

"Articulate Similarity: A Visual Search Framework for Embodied Knowledge in A Confucian Rites Video Archive". Poster at *16th International Digital Curation Conference (IDCC21)*, April 19 2021, Online.

## EXHIBITION & INSTALLATION & CREATIVE WORKS

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**Museum of Poetry Cultural Experience @Keqiao.** Co-curator. A digital, playful, and interactive museum. [demo]

**ImmerScience.** Tech lead. An immersive learning space created for Daning International School, Shanghai. [demo]

**Natural Origins of The Internet.** Artist. Data Art Installation. Museum of Inspiration, Hangzhou. [repo]

**Mirrorj.** Designer. A design for the augmented era, transmitting exhibition experience to a 2D interface. [blog]

**AquaA.** Designer. A virtual aquarium motivating knowledge sharing. Médecins Sans Frontières (MSF), Geneva. [repo]

**MOOC Learning Flow.** Designer & Developer. A visualization of learners' path with outcome prediction. [repo]

**SPARK.** Designer. An interactive stress management APP designed during the HCI course, EPFL. [demo]

## KNOWLEDGE & SKILLS

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**Knowledge fields:** Cultural Heritage, Digital Archives, Semantic Web, Machine Learning, User Experience (UX), Data Visualization, Visual Analytics, VR/AR/XR, Digital/Virtual Museum, Motion Capture, Cloud Solution, HCI

**Soft skills:** Product Design and Management, Communication, Data-driven Mindset, Agile, Team Spirit, Empathy

**Programming:** Python, JavaScript (D3.js, three.js, p5.js), SQL/Cypher, R, Java, processing, HTML/CSS, C++, etc.

**Tools:** UE4, Unity, Axure, Media Processing (DaVinci, Photoshop, Audition, AI, etc), Neo4j, Knime, MS Office, etc.

**Languages:** Mandarin (native), English (proficient), French (intermediate, B1/B2), Cantonese (elementary).

**Others:** Chinese Martial Arts, Musical Keyboard, Jazz Drumming, Yoga