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Jiayi Hong

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EDUCATION

Ph.D. in Computer Science **Jan. 2020–Feb. 2023**

Inria and Université Paris-Saclay, France

Thesis: Machine Learning Supported Interactive Visualization of Hybrid 3D and 2D Data for the Example of Plant Cell Lineage Specification

Advisor: Tobias Isenberg, *Co-advisor:* Alain Trubuil

Committee: Barbora Kozlíková, Miriah Meyer, Caroline Appert, Anastasia Bezerianos, and Johanna Beyer

Master of Science, Computer Science **Sept. 2018–Nov. 2019**

University of Bristol, UK

Bachelor of Science, Industrial Design **Sept. 2014–June 2018**

Zhejiang University, China

PROFESSIONAL EXPERIENCE

Postdoc Research Associate **April 2023–present**

School of Computing and Augmented Intelligence

Arizona State University, USA

Advisor: Ross Maciejewski

PUBLICATIONS

Summary

- **seven articles** published in or accepted to international, peer-reviewed journals
- **three** of these articles received the **Graphics Replicability Stamp** (awarded for articles with proven reproducibility that are published since 2017 in our most important journals): [2, 5, 7]
- **two articles** published in or accepted to international, peer-reviewed conferences
- **three** peer-reviewed **posters or showcases** at international conferences
- **total citations** according to Google Scholar (as of October 26, 2024): **42**

Peer-Reviewed Articles in International Journals

- [2] **Hong, J.**, Hnatyshyn, R., Santos, E. A. D., Maciejewski, R., Isenberg, T., “A survey of designs for combined 2D+3D visual representations,” *IEEE Transactions on Visualization and Computer Graphics*, vol. 30, no. 6, pp. 2888–2902, 2024. doi: 10.1109/TVCG.2024.3388516
- [3] **Hong, J.**, Sheguri, S., Askin, R. G., Maciejewski, R., “Carbon emission in football games: Footprint impact of power five conference realignment,” *Sustainability and Sports Science Journal*, vol. 2, no. 2, pp. 98–106, 2024. doi: 10.61486/KDVT9069
- [4] Wang, Y., Zhao, J., **Hong, J.**, Askin, R. G., Maciejewski, R., “A simulation-based approach for quantifying the impact of interactive label correction for machine learning,” *IEEE Transactions on Visualization and Computer Graphics*, 2024. To appear. doi: 10.1109/TVCG.2024.3468352
- [5] **Hong, J.**, Maciejewski, R., Trubuil, A., Isenberg, T., “Visualizing and comparing machine learning predictions to improve human-AI teaming on the example of cell lineage,” *IEEE Transactions on Visualization and Computer Graphics*, vol. 30, no. 4, pp. 1956–1969, 2023. doi: 10.1109/TVCG.2023.3302308
- [6] **Hong, J.**, Wang, X., Everitt, A., Roudaut, A., “Interacting with actuated walls: Exploring applications and input types,” *International Journal of Human-Computer Studies*, vol. 172, art. no. 102986, 12 pages, 2023. doi: <https://doi.org/10.1016/j.ijhcs.2022.102986>
- [7] **Hong, J.**, Trubuil, A., Isenberg, T., “LineageD: An interactive visual system for plant cell lineage assignments based on correctable machine learning,” *Computer Graphics Forum*, vol. 41, no. 3, pp. 195–207, 2022. doi: 10.1111/cgf.14533
- [8] Tang, T., Tang, J., **Hong, J.**, Yu, L., Ren, P., Wu, Y., “Design guidelines for augmenting short-form videos using animated data visualizations,” *Journal of Visualization*, vol. 23, no. 4, pp. 707–720, 2020. doi: 10.1007/s12650-020-00644-z

Peer-Reviewed Articles in International Conferences

- [9] Hnatyshyn, R., **Hong, J.**, Maciejewski, R., Norby, C., Maley, C. C., “Capturing cancer as music: Cancer mechanisms expressed through musification,” in *Proc. CHI*, New York: ACM, 2024, art. no. 727, 11 pages. doi: 10.1145/3613904.3642153
- [10] **Hong, J.**, Argelaguet, F., Trubuil, A., Isenberg, T., “Design and evaluation of three selection techniques for tightly packed 3D objects in cell lineage specification in botany,” in *Proc. GI, Mississauga, ON, Canada: Canadian Human-Computer Communications Society*, Mississauga, ON, Canada, 2021, pp. 213–223. doi: 10.20380/GI2021.33

Theses

- [11] **Hong, J.**, “Machine learning supported interactive visualization of hybrid 3D and 2D data for the example of plant cell lineage specification,” Ph.D. dissertation, Université Paris-Saclay, France, 2023.

Peer-Reviewed Posters or Showcases at International Conferences

- [12] Sheguri, S., **Hong, J.**, Maciejewski, R., Askin, R., “Carbon footprint impact of NCAA conference realignment,” in *INFORMS Annual Meeting, October 20–23, Seattle, WA, USA*, 2024.

- [13] Santos, E. A. D., **Hong, J.**, Isenberg, T., “A design space for linked 2D and 3D visual representations,” in *Posters at the IEEE Conference on Visualization (IEEE VIS, October 16–21, Oklahoma City, USA)*, 2022.
- [14] **Hong, J.**, Argelaguet, F., Trubuil, A., Isenberg, T., “An interactive system for analyzing plant embryo cell division,” in *Posters at the IEEE Conference on Visualization (IEEE VIS, October 25–30, (virtually in) Salt Lake City, Utah)*, 2020.

PRESENTATIONS

- 2024** Presented the paper “Visualizing and Comparing Machine Learning Predictions to Improve Human-AI Teaming on the Example of Cell Lineage” [5] at **IEEE VIS 2024**, virtually in Tampa, USA, Oct. 13-18, 2024.
- 2024** Presented the paper “A Survey of Designs for Combined 2D+3D Visual Representations” [2] at **PacificVis 2024**, in Tokyo, Japan, April 23-26, 2024.
- 2022** Presented the paper “LineageD: An Interactive Visual System for Plant Cell Lineage Assignments based on Correctable Machine Learning” [7] at **EuroVis 2022**, 24th EG Conference on Visualization, in Rome, Italy, June 13-17, 2022.
- 2021** Presented the paper “Design and Evaluation of Three Selection Techniques for Tightly Packed 3D Objects in Cell Lineage Specification in Botany” [10] at **Graphics Interface (GI) 2021**, virtually, May 27-28, 2021.
- 2020** Presented the poster “An Interactive System for Analyzing Plant Embryo Cell Division” [14] at **IEEE VIS 2020**, virtually, Oct. 23-28, 2021.

MENTORING

- 2024** **Yixuan Wang**, Ph.D. student, co-mentored with Ross Maciejewski for interactive ML [4]
- 2024** **Christian Seto**, Ph.D. student, co-mentored with Ross Maciejewski, worked on LLM4Vis [0]
- 2024** **Sia Sheguri**, undergraduate student, co-mentored with Ross Maciejewski, worked on conference realignment [3, 12]
- 2023** **Rosty Hnatyshyn**, Ph.D. student, co-mentored with Ross Maciejewski for musifying cancer [9]
- 2023** **Patrick Valente** and **Aurelio Medina**, undergraduate students, co-mentored with Ross Maciejewski, worked on privacy and fairness
- 2022** **Ebrar Ada Santos**, Master’s Student, co-mentored with Tobias Isenberg for 2D and 3D visualization combination [2]

TEACHING

- 2023** **CSE 691: SCAI Fulton Fellows Training (2023 Fall)**, Arizona State University
Instructor: Ross Maciejewski. Students: ~60
TA
- 2021–2023** **Introduction to Visualization**, Graduate Level at CentralSupélec
Instructor: Tobias Isenberg. Students: ~100
TA; designed tutorials and assignments; graded assignments

PROFESSIONAL SERVICE

Program Committees

- 2022** SIGGRAPH Asia, Technical Communications and Posters

Paper Reviews

- 2021–2024** IEEE Transactions on Visualization and Computer Graphics (TVCG)
2020, 2023 The ACM CHI Conference on Human Factors in Computing Systems (CHI)
2023 The ACM SIGCHI Conference on Designing Interactive Systems (DIS)
2022 The ACM Symposium on Virtual Reality Software and Technology (VRST)
2021 IEEE Visualization and Visual Analytics Conference (VIS)

Student Volunteers

- 2022** **Student Volunteer:** EG Conference on Visualization (EuroVis)
2021 **Student Volunteer:** IEEE Visualization and Visual Analytics Conference (VIS)

AWARDS AND HONORS

- 2020** **Best Project on the MSc in Computer Science** at University of Bristol
2018 **Outstanding Undergraduate Thesis Award** at Zhejiang University
2014–2016 **First-Class Scholarship for Outstanding Students** at Zhejiang University
2014–2016 **Excellent Student Award** at Zhejiang University
2016 **Chinese Patent: CN106056056**
about Airport Luggage Volume Measurement System Design Based on Realsense