Seraphina Yong

Website: seraphina-yong.github.io

Email: yong0021@umn.edu

Phone: +1-626-696-6841

Address: 200 Union St SE, 4-192 Keller Hall, Minneapolis, MN 55455.

RESEARCH STATEMENT

My approach to HCI research revolves around developing interaction techniques structured on understanding of specific **experience contexts**. Because every human experience has its own distinct perceptual and experiential qualities to which the design of interaction technique and environment can be directly shaped, the **sensory/modal/spatial qualities of the interface** are intrinsically tied to users' **emotional and cognitive experiences**. I have applied this through the design and **mixed-methods evaluation** of abstract **audio** representations, **tangible** interfaces, **wearables**, immersive **VR**, and **asymmetric spatial interaction** to support accessibility and communication. My interests lie in the intersection of perception and higher-level cognition, and use of this understanding in HCI research to design interactions for more **meaningful and generative experiences**.

EDUCATION

Ph.D., Department of Computer Science,
University of Minnesota (Minneapolis, MN) — 2021-
Lab: GroupLens Research & Illusioneering Lab
Advisors: Lana Yarosh, Evan Suma Rosenberg

M.S., Department of Computer Science,
National Tsing Hua University (Hsinchu, Taiwan) — 2017-2019
*Nationally ranked #2 university in Taiwan

B.S., Department of Computer Science,
University of Chicago (Chicago, IL) — 2012-2016

WORK EXPERIENCE

GroupLens Lab and Illusioneering Lab,
University of Minnesota, MN 2021-
Graduate Research Assistant
Primary Investigators: Lana Yarosh, Evan Suma Rosenberg
Projects: Investigating how retrospective VR-based perspective taking of real past interactions with significant others affects partner perceptions and communication during conflict resolution

NTU IoX Center Research Institute,
National Taiwan University, Taiwan 2019-2021
Research Assistant
Primary Investigator: Professor Bing-Yu Chen
Projects: Using thermal-augmented media to enhance recall of social emotional memory in depressives; Designing information presentation and communication for depressed older adults

Media and Interactives, Department of Exhibits,
Field Museum of Natural History, IL 2016-2017
Digital Interactives Producer
Projects: Designing and building novel digital touchscreen interfaces to present a variety of academic topics; also responsible for software-hardware integration and user analytics

Collaborative Social Computing Lab,
National Tsing Hua University, Taiwan 2015.07-2015.09
Taiwan International Graduate Program (TIGP) Research Intern
Advisor: Professor Hao-Chuan Wang
Project: HandVis – visualized gesture support for remote cross-lingual communication

Development of Social Cognition Lab, Department of Psychology, University of Chicago, IL 2014-2016
Research Assistant
Primary Investigator: Professor Katherine Kinzler
Projects: Role of social valence on infant assessment of preferences
Penalty-oriented investigation of moral development

Sleep, Metabolism and Health Center, Department of Medicine, University of Chicago, IL 2014.06-2014.09
Research Assistant
Primary Investigator: Professor Eve Van Cauter
Project: Restoring Insulin Secretion (RISE) national project ancillary study on impact of insulin resistance and sleep quality on cognitive ability

PUBLICATIONS

Refereed Conference Full Papers

Seraphina Yong, Min-Wei Hung, Chien-Wen Yuan, Chih-Chiang Chiu, Ming-Chyi Huang, Chuang-Wen You. Mind and Body: The Complex Role of Social Resources in Understanding and Managing Depression in Older Adults. To appear in Proceedings of the 2023 conference on Computer Supported Cooperative Work (CSCW) 2023.

Jerald Thomas Jr., **Seraphina Yong**, Evan Suma Rosenberg. Inverse Kinematics Assistance for the Creation of Redirected Walking Paths. Proceedings of the 21st IEEE/ACM Symposium on Mixed and Augmented Reality (ISMAR) 2022.

Ruei-Che Chang, Chih-An Tsao, Fang-Ying Liao, **Seraphina Yong**, Tom Yeh, and Bing-Yu Chen. Daedalus in the Dark: Designing for Non-Visual Accessible Construction of Laser-Cut Architecture. In The 34th Annual ACM Symposium on User Interface Software and Technology (UIST) 2021.

Chiu-Hsuan Wang, **Seraphina Yong**, Hsin-Yu Chen, Yuan-Syun Ye, Liwei Chan.
HMD Light: Sharing In-VR Experience via Head-Mounted Projector for Asymmetric Interaction. Proceedings of the 33rd Annual ACM Symposium on User Interface Software & Technology (UIST) 2020.

Chiu-Hsuan Wang, Chia-En Tsai, **Seraphina Yong**, Liwei Chan. Slice of Light : Transparent and Integrative Transition among Realities in a Multi-HMD User Environment. Proceedings of the 33rd Annual ACM Symposium on User Interface Software & Technology (UIST) 2020.

Workshops and Posters

Seraphina Yong, Min-Wei Hung, Chien Wen (Tina) Yuan, Chih-Chiang Chiu, Ming-Chyi Huang, Chuang-Wen You. Attitudes Toward Health and Communication in Depressed Older Adults. Proceedings of the 23rd ACM Conference on Computer Supported Cooperative Work and Social Computing Companion (CSCW) 2020.

Seraphina Yong, Yuan-Chi Tseng, Hao-Chuan Wang. AuralTrace: Pitch-Based Sonified Referencing to Support Reception of Virtual Spatial Communication. Taiwan Computer Human Interaction Conference (TAICHI) 2019. *Best Paper Award*

Seraphina Yong, Hao-Chuan Wang. Using Spatialized Audio to Improve Human Spatial Knowledge Acquisition in Virtual Reality. 23rd International Conference on Intelligent User Interfaces Companion, Poster (IUI) 2018.

Chen-Wei Huang, Pornlada Ittipornpithak, Ko-Ren Chang, **Seraphina Yong**.
NBrain: Customizable Messaging Support for Cross-Lingual Brainstorming. Taiwan Computer Human Interaction Workshop Demo (TAICHI) 2016.

Kuan-Yu Lin, **Seraphina Yong**, Shuo-Ping Wang, Chien-Tung Lai, Hao-Chuan Wang. HandVis: Visualized Gesture Support for Remote Cross-Lingual Communication. Proceedings of ACM Conference on Human Factors in Computing Systems, Extended Abstract (CHI) 2016.

PROJECTS

Improving Communication Skills During Conflict Resolution with Immersive Retrospective Perspective-taking, 2021—current
Communication behavior during interpersonal conflict is crucial but hard to clearly manage in the heat of the moment. Yet, approaches to conflict resolution in HCI have not yet focused on improving these skills themselves. Inspired by the bodies of work in VR for empathic perspective-taking and the use of video-recall in counseling psychology, we design and evaluate a system which stimulates reflection and social learning by enabling a user to retrospectively take the perspective of their conversation partner in an immersive audiovisual setting.

Understanding Non-Visual Needs for Laser-Cut Architecture Design, April 2021— September 2021
Laser-cutting is a promising fabrication method due to its fast prototyping ability that can empower makers, including blind or visually-impaired (BVI) creators. However, laser-cut models include an extra step of assembly and are intrinsically not designed to accommodate the needs of BVI users. We conduct a mixed-methods study with both sighted and BVI users to identify differences and similarities in their use of laser-cut model affordances during assembly, and provide specific implications to support general sensory accessibility in laser-cut design.

Thermally-Augmented Media to Enhance Positive Social Emotional Memory in Depressed Individuals, 2020—2021
Depressed individuals struggle with accuracy and specificity of neutral and positive emotional memories, which significantly affects social problem-solving ability. We create and evaluate a wearable device which leverages the link between thermal perception and emotional activation to strengthen memory of positive and neutrally-valenced social events.

Designing Collaborative Health for Depressed Older Adults, 2020-2021
Unique challenges of depression in older adults include the complex interplay of issues specific to both aging and depression, such as health anxiety and social pressures. Practitioners have called for the need to support collaborative health communication in this domain to address such comorbidity. We assess depressed older adults' perceptions of their own depression and how they communicate about it and present targeted information design implications to support recovery.

Task-Targeted Perceptualization for Spatial Collaboration, 2017-2020
The use of relational spatial knowledge in virtual spaces is relevant to many applications (e.g. spatial strategy and design), but multimodal feedback channels may be necessary to compensate for low fidelity visual-spatial cues in the virtual world. We explore sonification-focused multimodal tools as support for understanding in synchronous relational spatial communication.

Gesture Visualization for Remote Cross-Cultural Brainstorming, 2015-2016
A prototype video-conferencing interface that visualizes movement path of hand gesture to compensate for language deficits occurring in remote communication between speakers who may not both be fluent in their communication language. Gesture visualization is designed to encourage gesture use in this context as a language-independent communication medium.

Socially-customized Messaging for Cross-Lingual Brainstorming, 2015-2016
A messaging tool designed to support cross-lingual brainstorming productivity. Functions include shareable messages that are initially private to counter fear of evaluation, as well as visible selective translation to aid shared understanding of language needs, and fast positive feedback to encourage upwards comparison.

RESEARCH INTERESTS

Human-Computer Interaction
Embodied Computing and Multimodal Interaction

Social Cognition, Perception and Behavior
Empathy and Social Well-being

AWARDS AND GRANTS

ARCS Scholar 2022-2024

Three-Year Graduate Fellowship, College of Science and Engineering University of Minnesota 2021—current

TAICHI 2019 Best Paper Award (AuralTrace: Pitch-Based Sonified Referencing to Support Reception of Virtual Spatial Communication**)**

International Student Scholarship, National Tsing Hua University 2017-2018

Dean's List, University of Chicago 2012-2016

OTHER EXPERIENCE

Blog writer for ACM UIST on Medium (read it here)

ACM CHI, CSCW Conference reviewer since January 2020

CSCW Asia Winter School 2020
Attendee and presenter

CSCW Asia Winter School 2019
Attendee and presenter

PROFESSIONAL SKILLS

Programming: Python | C# | C++ | R | JavaScript | HTML&CSS

Software: Blender | Git | Unity | HTC Vive | Oculus | SteamVR | OpenVR | JMP | SPSS

Languages: English (Native), Mandarin Chinese (Fluent)