# Seraphina Yong

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## RESEARCH STATEMENT

I am interested in how the structure and multimodality of user interfaces can contribute to social interactions and well-being. Within HCI, my research focuses on developing interaction techniques that leverage the sensory, modal, and spatial characteristics of an activity context to create experiences which can fully bring out user's natural abilities of receptiveness to and self-expression of social interaction — built on my background in social cognition and computer science. I am interested in designing visceral experiences that benefit emotional and social well-being, and have extensive experience in prototyping multimodal interfaces (VR, spatial audio, haptic, & thermal) and conducting mixed methods, qualitative research.

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## EDUCATION

**Ph.D., Department of Computer Science,**
**University of Minnesota (Minneapolis, MN)** — 2021- current
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

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

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## WORK EXPERIENCE

**GroupLens Lab and Illusioneering Lab,**
**University of Minnesota, MN** 2021-
Graduate Research Assistant
Primary Investigators: Lana Yarosh, Evan Suma Rosenberg
Projects: Designing systems for embodied social cognition; evaluating the effect of VR-based other-embodiment on building better communication skills and connections with close others

**NTU IoX Center Research Institute,**
**National Taiwan University, Taiwan** 2019-2021
Research Assistant
Primary Investigator: Professor Robin 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

## PUBLICATIONS

### Refereed Conference Full Papers

Seraphina Yong, Leo Cui, Evan Suma Rosenberg, Svetlana Yarosh. A Change of Scenery: Transformative Insights from Retrospective VR Embodied Perspective-Taking of Conflict With a Close Other. *To appear in* Proceedings of the 2024 Conference on Human Factors in Computing Systems (CHI) 2024.

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. Proceedings of the 2023 conference on Computer Supported Cooperative Work (CSCW) 2023.

Ruei-Che Chang*, Seraphina Yong*, Fang-Ying Liao, Chih-An Tsao, Bing-Yu Chen. Understanding (Non-)Visual Needs for the Design of Laser-Cut Models. To appear in Proceedings of the 2023 Conference on Human Factors in Computing Systems (CHI) 2023.
*Both authors contributed equally to this work.*

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.
In 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. Designing Agency-Preserving Reflection Systems to Support Reappraisal of Social Biases. Proceedings of the 26th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion (CSCW) 2023.

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.

<u>Seraphina Yong</u>, 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*

<u>Seraphina Yong</u>, 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, <u>Seraphina Yong</u>. NBrain: Customizable Messaging Support for Cross-Lingual Brainstorming. Taiwan Computer Human Interaction Workshop Demo (TAICHI) 2016.

Kuan-Yu Lin, <u>Seraphina Yong</u>, 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.

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| **PROJECTS** | **Improving Understanding and Communication in Close Others with VR-Embodied Perspective-taking**, 2021—current |

**Improving Understanding and Communication in Close Others with VR-Embodied Perspective-taking**, 2021—current
Communication between close others can sometimes be difficult due to strong interdependence. Current technology solutions have focused on minimizing conflicts instead of improving actual skills for understanding and communication between people. We design and evaluate a VR-based 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 convenient and promising prototyping method, but laser-cut models include an extra step of assembly which is a barrier to blind and visually-impaired (BVI) users. We conduct a mixed-methods study with both sighted and BVI users to compare their use of laser-cut model affordances, and provide implications to support general sensory accessibility in laser-cut design.

**Thermal-Augmented Media to Enhance Positive Social Emotional Memory in Depression**,
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
Depressed older adults struggle with a confusing interplay of mental and bodily symptoms that hinder treatment. Practitioners have identified a need for collaborative health communication to support treatment. We conducted an in-depth interview to identify depressed older adults' perceptions of their own bodily health and communication in order to derive targeted implications for designing collaborative technology 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. e-

sports team strategizing and interior 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.

## RESEARCH INTERESTS

Human-Computer Interaction
Embodied Computing and Multimodal Interaction
Social Cognition, Perception and Behavior
Empathy and Social Well-being

## AWARDS AND GRANTS

ARCS and 3M 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)