

# Mahika Phutane

PHD STUDENT · COMPUTER SCIENCE

+1 607-262-1127 | [mahika@cs.cornell.edu](mailto:mahika@cs.cornell.edu) | [@MahikaPhutane](https://twitter.com/MahikaPhutane)

## Education

### Cornell University

PHD, COMPUTER SCIENCE

New York, USA

Sept, 2020 - Present

- Advisor: Dr. Shiri Azenkot
- Focus: Accessibility, Human-Computer Interaction

### University of Toronto

BSc, COMPUTER SCIENCE

Toronto, Canada

Sept, 2015 - June 2020

- Additional major in Communication, Culture, Information, and Technology (CCIT)
- Research Mentors: Dr. Rhonda McEwen, Dr. Cosmin Munteanu, Dr. Daniel Zingaro

## Research Interests

Human-Computer Interaction and Accessibility; voice AI for people with visual impairments, haptics

## Publications

### PUBLISHED

Singhal T., **Phutane, M.** 2021. Elevating Haptics: An Accessible and Contactless Elevator Concept with Tactile Mid-Air Controls. *In Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems*, pp.1-4.

Hartel, J., **Phutane, M.**, Posa, S., Shi, S., Xu, A., Bradshaw, S. 2021. Somewhere Over the Rainbow: The Use of Color in the Draw-and-Write Technique. *Visual Methodologies*, 8(1), 16 - 36.

### IN REVIEW

**Phutane M.**, Wright J., Castro B., Shi L., Stern S., Lawson H., Azenkot S. (To Appear). Tactile Materials in Practice: Understanding the Experiences of Teachers of the Visually Impaired. *ACM Transactions on Accessible Computing (TACCESS)*

Rao M., **Phutane M.**, Yang Q. (In Review). Does Alexa Put Visually-Impaired Users at a Disadvantage? Mapping the UX, Accessibility, and Fairness Issues of Voice AI. *In Proceedings of the CHI Conference on Human Factors in Computing Systems*

## Research Experience

### Cornell University

CO-ADVISORS: DR. SHIRI AZENKOT, DR. QIAN YANG

Ithaca, NY

Jun. 2021 - Present

- Exploring how voice agents (screenreaders, voice assistants) can recover visual and ambient information

### Cornell University

ADVISOR: DR. ADITYA VASHISTHA

Ithaca, NY

Sept. 2021 - Present

- Investigating how people with disabilities experience microaggressions in a digital context

### Columbia University

ADVISOR: DR. STEVEN FEINER

New York, NY

May. 2021 - Aug. 2021

- Developed hands-free interactions in VR for people with neuromotor disabilities

### University of Toronto

CO-ADVISORS: DR. RHONDA MCEWEN, DR. MORTEZA ZIHAYAT

Toronto, ON

Jan. 2019- Present

- Detecting anxiety through mobile sensors and sequence modelling algorithms
- Dissecting conversations on anxiety through a gap analysis on Reddit, Medium, and Academia

## University of Toronto

ADVISOR: DR. COSMIN MUNTEANU

- Prototyped haptic and tactile interaction methods with tablets for older adults
- Led to publication: *Help!: I'm Stuck, and there's no F1 Key on My Tablet!*

Toronto, ON

Feb. 2017- Apr. 2019

## Professional Experience

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- 2018-2019 **AR Software Engineer**, Modiface, L'Oreal Group
- 2017-2019 **Research Assistant**, Technologies for Aging Gracefully Lab (TAGLab), University of Toronto
- 2016-2019 **Research Assistant**, Information Science, University of Toronto

## Awards & Fellowships

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|------|---|------------|
| 2020 | <b>Dennis Washington Graduate Fellowship</b> , Dennis & Phyllis Washington Foundation | \$ 120,000 |
| 2017 | <b>Hacking Arts: First Place</b> , MIT Media Lab                                      | \$ 2,500   |
| 2016 | <b>Horatio Alger Scholarship</b> , Horatio Alger Association                          | \$ 5,000   |

## Teaching Experience

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- 2019-2020 **CSC263: Data Structures and Analysis**, Teaching Assistant, University of Toronto
- 2017-2018 **CSC236: Introduction to Computational Theory**, Teaching Assistant, University of Toronto
- 2017-2018 **CSC148: Introduction to Computer Science**, Teaching Assistant, University of Toronto
- 2016 **CSC108: Introduction to Computer Programming**, Teaching Assistant, University of Toronto

## Mentoring

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- 2021 **Cyrus West**, Research Assistant, Cornell
- 2021 **Michael Ye**, NSF Undergraduate Researcher Program, Cornell
- 2019-2021 **Felipe Lepecki**, Research Assistant, University of Toronto

## Projects, Media, & Press

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### FUN PROJECTS

- 2021 **Maestro: An AI-guided vocal coach**, Google Magenta, [link](#)
- 2017 **MIT Hacking Arts 2017 Nourishes Innovation with Perception Neuron Motion Capture**, [link](#)

### PRESS

- 2020 **An accessibility-driven solution to slowing the spread of COVID-19**, U Waterloo, [link](#)
- 2020 **A Touchless 2020**, Yahoo News, [link](#)
- 2020 **How Do You Make Elevators Safer in a Pandemic?**, Research2Reality, [link](#)
- 2020 **Scholarship gives former UTM student the push to strive for something bigger**, UofT, [link](#)
- 2020 **Richmond student wins top North American scholarship**, Richmond News, [link](#)
- 2017 **CS Student Won Tech Challenge at MIT Hacking Arts 2017**, UofT, [link](#)

## Service & Outreach

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- 2021 **CS PhD Admissions Committee**, Member
- 2021 **XR Access Research Network**, Co-Leader

## Skills

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**Design Research Methods:** Interviews, Observations, Contextual Inquiry, Diary Studies, Wizard-of-Oz, Thematic Analysis

**Programming:** Python, C++, Objective C (iOS), Web Development, Unity, Linux

**Prototyping:** Storyboarding, Wireframing, Sketching, Photoshop, Illustrator, Premiere, Audition