

# Mina Khan

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<http://khanmina.github.io/>

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## EDUCATION

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### Massachusetts Institute of Technology (MIT) Media Lab

2018-2022

#### *Doctor of Philosophy in Media Arts and Sciences*

GPA: 5.0/5.0

Thesis: Context-aware and Closed-loop Behavior Change using Artificial Intelligence

### Massachusetts Institute of Technology (MIT) Media Lab

2016-2018

#### *Master of Science in Media Arts and Sciences*

GPA: 5.0/5.0

Thesis: "Wonderland: Constructionist Science Learning in Mixed Reality"; Courses: How to Make (almost) Anything; How to Design almost Anything; Tools for well-being; Creative Learning; Human-Machine Symbiosis; Microfabricated Devices

### Mount Holyoke College

2011-2015

#### *B.A. in Mathematics, Physics & Computer Science (Magna Cum Laude)*

GPA: 4.0/4.0

Courses: Machine Learning; Artificial Intelligence; Real Analysis; Complex Analysis; Quantum Mechanics (I, II); Algorithms; Differential Equations; Theory of Computation; Electromagnetic Theory; Fluid Mechanics; Electronics

## EXPERIENCE

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### **MIT Media Lab** - Research Assistant, Fluid Interfaces group

Jun '16 - Jun '22

Researching technologies to support human health & cognition. Projects: Mathland and PAL

### **MIT Media Lab** - Teaching Assistant

Jan - Apr '19

Course: Cognitive Enhancement

### **IDEO** - Summer Research Fellow

Jun - Aug '17

Developed a Mixed Reality application for constructionist physics learning in the real world

### **Google** - Software Engineer, Project Aura: Google Glass & Beyond

May '15 - May '16

Created contextually- and emotionally-aware personalized applications for wearable devices

### **Udacity** - Course Manager

Jun '14 - Mar '15

Courses: Machine Learning; Web Programming; Android Development; Python Programming

### **MIT Computer Science and Artificial Intelligence Lab** - Researcher, Robot Locomotion Lab

Jun - Aug '14

Implemented Gröbner bases algorithms to efficiently solve robot locomotion problems

### **Scanning Probe Microscopy Lab** - Undergraduate Research Student, Mount Holyoke College

Jan '12 - Jun '14

Designed nanostructures to exponentially increase storage capacity of magnetic memory devices

### **Swarm Robotics Lab** - Undergraduate Researcher/Developer, Mount Holyoke College

Jan '13 - Dec '14

Implemented multi-robot formations using rigidity graph theory for swarm robots

### **National Corporation for Atmospheric Research** - Research Intern, High Altitude Laboratory

Jun - Aug '13

Used satellite data to parameterize auroral energy and joule heating in upper atmospheric models

### **Mount Holyoke College** - Teaching Assistant

Jan '11 - Dec '14

Linear Algebra; Electromagnetism; Data Structures; Discrete Math; Quantum Mechanics; Real Analysis

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## PUBLICATIONS

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**Personalized & Privacy-preserving Egocentric Visual Context Detection using On-device Deep Learning**  
*28th ACM Conference on User Modeling, Adaptation & Personalization (Under review).* Khan, Mina, et al.

**Time to Put the Self Back in Self-improvement: Users have Dynamic, Diverse, & Intrinsically-Motivated Behavior Change Goals.** *Joint Proceedings of the ACM CHI 2021 Workshops (Under review).* Khan, Mina, et al.

**Tracking Diverse Feelings and Activities Encourages Self-guided Holistic Behavior Change**  
*2021 Proceedings of AsianCHI Symposium. ACM, 2021 (Under review).* Khan, Mina, et al.

**Changing Computer-Usage Behaviors: What Users Want, Use, and Experience**  
*2021 Proceedings of AsianCHI Symposium. ACM, 2021 (Under review).* Khan, Mina, et al.

**Privacy-preserving Audio, Visual, and Physiological Contexts for Wearable Behavior Change Support**  
*Joint Proceedings of the ACM Intelligent User Interfaces (IUI) 2021 Workshops.* Khan, Mina, et al.

**PAL: Wearable & Personalized Habit-support Interventions in Visual & Physiological Contexts**  
*2021 AH : Augmented Human International Conference. ACM, 2021.* Khan, Mina, et al.

**Users want Diverse, Multiple, and Personalized Behavior Change Support: Need-finding Survey**  
*International Conference on Persuasive Technology, Springer, 2021.* Khan, Mina, et al.

**Improving Context-aware Habit-support Interventions using Egocentric Visual Contexts**  
*International Conference on Persuasive Technology, Springer, 2021.* Khan, Mina, et al.

**PAL: A Wearable Platform for Real-time, Personalized, & Context-Aware Health & Cognition Support**  
*arXiv preprint arXiv:1905.01352 (2019)* Khan, Mina, G. Fernandes, U. Sarawgi, P. Rampey, and P. Maes.

**Mathland: Constructionist Mathematical Learning in the Real World Using Immersive Mixed Reality**  
*International Conference on Immersive Learning. Springer, Cham, 2018.* Khan, Mina, F. Trujano, and P. Maes.

**Mathland: Playful Mathematical Learning in Mixed Reality**  
*Extended Abstracts, 2018 CHI Conference on Human Factors in Computing Systems. ACM, 2018.* Khan, M, et al.

**ARPiano: Efficient Music Learning Using Augmented Reality** (Best Paper Award)  
*International Conference on Innovative Technologies and Learning. Springer, 2018.* F. Trujano, M. Khan, et al.

**Towards Personalized Medicine: The Evolution of Imperceptible Healthcare Technologies**  
*Foresight 2018.* C Dagdeviren, Khan Mina, Sadraei A., et al.

**TagAlong: Informal Learning from a Remote Companion with Mobile Perspective Sharing**  
*Cognition and Exploratory Learning in Digital Age (CELDA) 2015.* Greenwald, S., Khan, M, et al.

**Enabling Human Micro-Presence Through Small-Screen Head-up Display Devices**  
*Extended Abstracts, CHI Conference, ACM, 2015.* Greenwald, S. , Khan, M., et al.

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## PUBLICATIONS

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**A Multi-level Single-bit Data Storage Device.** *Journal of Applied Physics* 115.17 (2014): 17D511.

Bickel, Jessica E., **Mina Khan**, and Katherine E. Aidala

## TALKS & EXHIBITS

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**Bees Of Science Exhibit 2019 (MIT Media Lab):** LOVE: a flexible microfabricated breathing sensor tattoo

**TEDxBeaconStreet 2017:** Play, Power, & Passion: Falling in love with math

**Ars Electronica 2017:** Tangible AI: Physical Engagement with a social chatbot (Microsoft Zo)

## AWARDS

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### FELLOWSHIPS & SCHOLARSHIPS

**MIT Media Lab Learning Fellow** (Full-year academic funding) 2018-2019

**LEGO Learning Fellow** (Full-year academic funding) 2017-2018

**Google Anita Borg Scholar** 2015

Sarah Williston Scholar (Mount Holyoke College) 2014

### ACADEMIC HONORS

**Magna Cum Laude** (Mount Holyoke College) 2015

Sarah Williston Prize for **Academic Excellence** (Mount Holyoke College) 2013, 2014, 2015

Rogers Rusk Memorial **Prize in Physics** (Mount Holyoke College) 2015

Fennema & Strahman **Prize in Computer Science** (Mount Holyoke College) 2015

Mildred L Sanderson Prize for **Excellence in Math** (Mount Holyoke College) 2012

Bennet Prize for **Excellence in Physics** (Mount Holyoke College) 2012

**Highest Achievement in A Level Mathematics** (Cambridge International Examinations) 2011

**Highest Achievement in A Level Further Math** (Cambridge International Examinations) 2011

**Highest Achievement in A Level Economics** (Cambridge International Examinations) 2011

### COMPETITIONS

**Microsoft Design Expo Winner** Holobits: Interactive storytelling in Mixed Reality 2017

**Google Code Jam Winner** 2014, 2015

## SKILLS

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**Software:** Machine Learning (Tensorflow), Mixed Reality (Unity), Android and Web Development, Python.

**Hardware:** Microfabrication (cleanroom), Circuit design (Eagle), CNC milling, Laser cutting, & 3D design

**Design:** Adobe Creative Suite (Illustrator, Photoshop, InDesign, Premiere)

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