Mina Khan

http://khanmina.github.io/
+1 857-280-0613
minakhan01@gmail.com

EDUCATION

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
Topics: Computer Vision; Reinforcement Learning; Human-Computer Interaction, Human-AI collaboration; Healthcare; Safe, Sampl-efficient, and Human-in-the-loop Learning; Intelligence Augmentation; Cognitive and Behavioral Sciences.

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
Topics: Learning Theory; Mixed Reality; Courses: How to Make (almost) Anything; How to Design almost Anything: Creative Learning; Human-Machine Symbiosis; Microfabricated Devices (I & II); Tools for well-being

Mount Holyoke College 2011-2015
B.A. in Mathematics, Physics & Computer Science **(Magna Cum Laude)** **GPA: 4.0/4.0**
Courses: Real Analysis; Complex Analysis; Abstract Algebra; Differential Equations; Theory of Computation; Algorithms; Machine Learning; Artifical Intelligence; Quantum Mechanics (I, II); Electromagnetic Theory; Fluid Mechanics; Electronics

RESEARCH EXPERIENCE

MIT Media Lab **- Research Assistant, Fluid Interfaces group** **Jun '16 - Jun '22**
Researching technologies to support human health & cognition. Projects: Mathland and PAL

Google, Health and Research **- Teaching Assistant** **Jun - Aug '21**
Researched multimodal machine learning models using vision and sensor data for sport analytics

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

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TEACHING EXPERIENCE

MIT Media Lab **-** Teaching Assistant — Jan - Apr '19
Course: Cognitive Enhancement

Mount Holyoke College Teaching Assistant — Jan '11 - Dec '14
Linear Algebra; Electromagnetism; Data Structures; Discrete Math; Quantum Mechanics; Real Analysis

PUBLICATIONS

Pretrained Encoders are All You Need
ICML Workshop on Unsupervised Reinforcement Learning, 2021. **Khan, Mina,** et al.

Personalizing Pretrained Models
ICML Workshop on Human-in-the-Loop Learning, 2021. (Submitted to NeurIPS, 2021) **Khan, M, et al.**

PAL: Intelligence Augmentation using Egocentric Visual Context Detection
CVPR Workshop on Egocentric Perception, Interaction and Computing, 2021. **Khan, Mina,** et al.

Personalized & Privacy-preserving Egocentric Visual Context Detection using On-device Deep Learning
28th ACM Conference on User Modeling, Adaptation & Personalization, 2021. **Khan, Mina,** et al.

Privacy-preserving Audio, Visual, and Physiological Contexts for Wearable Behavior Change Support
HEALTHI Workshop, 2021 ACM Intelligent User Interfaces Conference. **Khan, Mina,** et al.

Tracking Diverse Feelings and Activities Encourages Self-guided Holistic Behavior Change
Extended Abstracts, 2021 CHI Conference on Human Factors in Computing Systems. ACM, 2021. **Khan, Mina,** et al.

Self-determined Behavior Change Goals are Dynamic, Diverse, and Intrinsically-Motivated
Ninth International Workshop on Behaviour Change Support Systems, Persuasive Tech, 2021. **Khan, Mina,** et al.

Changing Computer-Usage Behaviors: What Users Want, Use, and Experience
Extended Abstracts, 2021 CHI Conference on Human Factors in Computing Systems. ACM, 2021. **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. (Best Paper Candidate)

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.

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PUBLICATIONS

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,**

Enabling Human Micro-Presence Through Small-Screen Head-up Display Devices
Extended Abstracts of the 2015 CHI Conference on Human Factors in Computing Systems. ACM, 2015.
Greenwald, S. W., **Khan, M**., & Maes, P.

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

FELLOWSHIPS AND 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

DESIGN COMPETITIONS

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

TALKS & EXHIBITS

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)

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ACADEMIC AWARDS

Magna Cum Laude (Mount Holyoke College) 2015

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

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

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

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

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

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

Highest Aggregated in 4 subjects A Levels (Cambridge International Examinations) 2011

Highest Achievement in O Level Principles of Accounting (Cambridge International Examinations) 2009

Awards for Valedictorian, Mathematics, Economics, and Accounting (The Lyceum School) 2011

OTHER COMPETITIONS

Google Code Jam Winner (Top 50) 2015

Google Code Jam Winner (Top 50) 2014

Best Business Pitch, Pitch4 Competition 2015

Audience Favorite Pitch, Pitch4 Competition 2015

3rd Position in Grinspoon Enterpreneurship Competition 2015

4th Position in CCRU Regional Math Competition 2013

Best Delegate, Harvard Model United Nations (HMUN) and Rotary MUN 2011, 2010

SKILLS

Software: Machine Learning (Tensorflow, JAX), Mixed Reality (Unity), Android and Web (Flutter, HTML, CSS), Python, Java

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

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