

Mina Khan

Research Scientist, Deepmind, Google

<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 (AI) for Intelligence Augmentation

Topics: Safe, Sample-efficient, & Human-in-the-loop AI; Computer Vision; Human-Computer Interaction; Health/Wellbeing

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 Anything; How to Design Anything; Human-Machine Symbiosis; Well-being Tools, Microfabrication

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; Artificial Intelligence; Quantum Mechanics (I, II); Electromagnetic Theory; Fluid Mechanics; Electronics

EXPERIENCE

Deepmind, Google - Research Scientist, Multiagent and Game Theory Team

Jan '22 - present

Researching deep learning and deep reinforcement learning for real-world multiagent applications

MIT Media Lab - Research Assistant, Fluid Interfaces group

Jun '16 - Jan '22

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

Google, Health and Research - Research Intern

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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PUBLICATIONS

Mastering the game of Stratego with model-free multiagent reinforcement learning *Science*, 2022

Developing, evaluating and scaling learning agents in multi-agent environments *AI Comms*, 2022

Wearable System for Personalized and Privacy-preserving Egocentric Visual Context Detection using On-device Deep Learning

Adjunct Proceedings of ACM Conference on User Modeling, Adaptation & Personalization, 2021 Khan, Mina et al.

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. 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

TEACHING

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

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

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

COMPETITIONS

Microsoft Design Expo Winner Holobits: Interactive storytelling in Mixed Reality	2017
Google Code Jam Winner (Top 50)	2014, 2015
Best Business Pitch, Pitch4 Competition	2015
Audience Favorite Pitch, Pitch4 Competition	2015
3rd Position in Grinspoon Entrepreneurship Competition	2015
4th Position in CCRU Regional Math Competition	2013
Best Delegate, Harvard Model United Nations (HMUN) and Rotary MUN	2010, 2011

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)
