Maryam Ashoori

Ph.D • Research Scientist • User Experience Lead

Maryam Ashoori is a Research Staff Member and Master Inventor at the IBM T. J. Watson Research Center. She is also known as IBM's "cool things" czar because of her passion for exploring the intersection between art and computer science. Maryam is the creator of TJBot and Entanglion, open source projects to teach people about artificial intelligence and quantum computing. Her work over the last 8 years has focused on developing next-generation human-machine interfaces to enable symbiotic relationships between people and systems.

EXPERIENCE

IBM Research | 2014 – Present | T.J. Watson Research Center, NY

Research Staff Member, IBM Research AI (July 2018 – Present)
- Leading exploratory AI challenges to create immersive AI experiences addressing the ethics of AI and explainability.

Manager, Quantum User Experience and Design (Feb 2017 – July 2018)
- Built and directed interdisciplinary team of designers and developers to create online experiences showcasing IBM Quantum technologies
- Design lead for IBM Q: https://www.research.ibm.com/ibm-q/
- Design owner of IBM Q Experience: https://quantumexperience.ng.bluemix.net/qx/experience
- Co-creator of Entanglion (ibm.biz/entanglion), the world's first quantum computing board game

Research Staff Member, Cognitive Computing (Feb 2016 – Present)
- Creator of TJBot (https://www.research.ibm.com/tjbot/), the first DIY AI kit for Raspberry Pi
- Design lead of TJBot Swift Playground https://developer.apple.com/swift-playgrounds/subscriptions/
- Appointed as Master Inventor for contributions to IP portfolio and mentorship

Advisory Interaction Designer (May 2014 – Feb 2016)
- Earned title of "Cool Things Czar" by designing experiences that explore intersections between art and science

IBM | 2011 – 2014 | Canada

Staff User Experience Designer (May 2012 – May 2014)
- Design lead for IBM Rational Engineering Lifecycle Manager: https://jazz.net/products/rational-engineering-lifecycle-manager/

Extreme Blue Intern (May 2011 – Aug 2011)
- Designed an operational risk management solution for financial institutions and pitched it to the IBM CEO

Cyborg Trading Systems | 2011 | Canada

User Experience Lead
- Lead designer for all high frequency stock data visualizations of Cyborg Trading tools

HUMANSYSTEMS | 2010 | Canada

Human Factors Consultant
- Created research initiatives to address consumer needs for complicated systems applications

University of Waterloo | 2009 – 2012 | Canada

Human Factors Researcher, School of Systems Design Engineering

- Designed and developed collaborative cognitive tools for healthcare in the Advanced Interface Design Lab

University of Ottawa | 2008 | Canada

Research Assistant, School of Electrical Engineering and Computer Science

- E-procurement, designed a procurement service model for B2B architectures

EDUCATION

Ontario College of Art and Design
Art and Design Studio certificate
2012 – 2014

University of Waterloo
Ph.D. in Systems Design Engineering
2009 – 2012

Nanyang Technological University
M.Eng. in Computer Engineering
2005 – 2008

University of Tehran
M.Sc. in Artificial Intelligence and Robotics
2003 – 2005

Tehran Polytechnic
B.Sc. in Computer Engineering
1998 – 2003

SKILLS

- Proficient in turning new technologies into product solutions, physical prototyping, digital fabrication.
- Design leadership, hardware & software interfaces, IoT devices, project management, and client relations.
- Human Computer Interaction— Design thinking, lean UX, contextual inquiry, ideation, concept to design, brand definition and execution, heuristic evaluations, quantitative and qualitative user research.
- Artificial Intelligence skills— Principles, machine learning, AI services
- Designing for a wide range of media including tactile, voice, web, and mobile interfaces.
- Quick prototyping with Adobe Creative Suite, Balsamiq, Sketch. Programming experience in Javascript, HTML, Python, and Node.js

PATENTS, PAPERS, & PRESS

- 30+ patents published or filed.
- 24 published papers: https://goo.gl/gFtgSR
- Numerous articles in press (TJBot)
- Invited speaker across US and Canada

PATENTS

30+ disclosures filed or published

Method and System for Targeted Advertising Based on Natural Language Analytics
System and Method for Transforming Passive Objects into Smart Devices Through Recognizing Their Acoustic Features
Health Monitoring Using Parallel Cognitive Processing
Cognitive Chair For Monitoring Disease Progression in Parkinson's Disease
System, Method, and Recording Medium for Cognitive Health Management
Medication Scheduling and Alerts
Wearer Role-based Visually Modifiable Garment
Proximity Feedback for Medicine Identification
Determining Intended Electronic Message Recipients via Linguistic Profiles
Secure, Serendipitous Social Connection via Real-time Biometrics and Cognitive State Comparison
System and Method for Crowd (Group) State Sensing base on a Combination of Wearable Sensor Data
Dual Interactive Visualization System for Sensitivity Analysis to Risk Preferences for Decision Support
Social Connection via Real-time Image Comparison

Implementing Restricted-Operation Region for Unmanned Vehicles
Smart Mat for Package Deliveries
Scalable Visualization of a Product and Its Variants
Clothing Modification Apparatus and Service for Traffic Control
System and Method for Supplementing Driving Directions for People Navigating in Unfamiliar Areas
Method to Expand and Collapse Hierarchical Data Structures
Using Shades and Cross Hair for Displaying Warning of UI Widgets for Visually Impaired Users
Dynamic User Interaction Based on Portability of a device
Transparent Control Elements
The Application of Temporal Casual Modeling to Operational Risk Management Business Process
Method for Cross-functional Risk-Adjusted Planning
Integrating Risk Metrics into the Planning Process
Cognitive Ranking of Terms Used During a Conversation

PAPERS

Publications in Computer Science: http://dblp.uni-trier.de/pers/hd/a/Ashoori:Maryam

Publications in Systems Design: https://goo.gl/gFtgSR

Entanglion: A Board Game for Teaching the Principles of Quantum Computing
To appear in Proceedings of CHIPlay 2018, 28-31 October 2018, Melbourne, Australia

Knock Knock, What's There: Converting Passive Objects into Customizable Smart Controllers
To appear in Proceedings of MobileHCI 2018, 3-6 September 2018, Barcelona, Spain

Symbiotic Cognitive Computing
AAAI Magazine, Feb 2016

TJBot: An Open Source DIY Cardboard Robot for Programming Cognitive Systems
In Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '17). ACM, New York, NY, USA, 381-384

The impending ubiquity of cognitive objects
AAAI Publications, Symbiotic Cognitive Systems workshop of the Thirtieth AAAI Conference on Artificial Intelligence, Technical Report WS-16-14, February 12–17, 2016, Phoenix, Arizona USA

Immersive experience for remote participants of smart conference rooms
AAAI Publications, Symbiotic Cognitive Systems workshop of the Thirtieth AAAI Conference on Artificial Intelligence, Technical Report WS-16-14, February 12–17, 2016, Phoenix, Arizona USA

Design and Development of Interactive Display Spaces
The Handbook of Multimodal-Multisensor Interfaces - book chapter, 2016

Towards understanding wearable device use in the enterprise: privacy, adoption and design Issues
The 1st International Workshop on Quantified Workplace, CSCW 2016, San Francisco, USA

Creating the mood: design for a cognitive meeting room
In Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '15). ACM, New York, NY, USA, 2001-2006.

Exploring the potential of wearables to support employment for people with mild cognitive impairment
In Proceedings of the 17th International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS '15). ACM, New York, NY, USA, 401-402

Using team cognitive work analysis to reveal healthcare team interactions in a labour and delivery unit
Ergonomics. 2014; 57(7): 973-986

Team cognitive work analysis: structure and control tasks
Journal of Cognitive Engineering and Decision Making, 2013; 7(2):123-140

Cognitive task analysis in action: collaboration in the operating room
In Proceedings of the Human Factors and Ergonomics Society's 55th Annual Meeting, 2011; 55(1): 272-276

Reinventing the wheel: control task analysis for collaboration
In Proceedings of the Human Factors and Ergonomics Society's 54th Annual Meeting, 2010; 54(4): 274-278

Toward a framework for dynamic service binding in e-procurement
Lecture Notes in Business Information Processing 26, Springer-Verlag, 2009: 89-99

Toward a Model of Intelligence in Pedagogical Agents
IJEE International Journal of Engineering Education, 2008

Economically inspired self-healing for multi-agent systems
IEEE Proceedings of the 2007 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology

Socializing pedagogical agents for personalization in virtual learning environments
IEEE Proceedings of the 2007 IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology

Toward a society oriented approach for fault handling in multi-agent systems
Proceedings of the 20th IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2007), 1397-1400

Mentor agent: an intelligent virtual teacher for personalized learning environments
Proceedings of 7th WSEAS International Conference on Distance Learning and Web Engineering, 2007; 315-320

Intelligent market-based learner modeling
Lecture Notes in Artificial Intelligence 4099, Springer-Verlag, 2006;101-111

Utilizing data fusion in an economy of self-motivated agents
In Proceedings of the 3rd International Conference on Computational Intelligence, Robotics, and Autonomous systems (CIRAS 2005)

Toward a model of an improved economy of agents
In Proceedings of the second International Conference on Machine Intelligence (ICMI 2005), pp. 531-536

Stock management: a cooperative approach to improve multi-agent systems
In Proceedings of the 10th Annual Computer Society of Iran Computer Conference (CSICC 2005)

Correlation based watermarking in still images
In Proceedings of the 8th Annual Intelligent Systems Conference (CIS 2004)

A modern market based task allocation approach in multi-agent systems
In Proceedings of the 8th Annual Intelligent Systems Conference (CIS 2004)

PRESS

Select News Articles in English about TJBot

IBM introduces open-source project TJ Bot, SDTimes, Nov. 14, 2016.
Apple releases Swift Playgrounds 2.0 with new robots, subscription feature, and more, 9to5mac, Jan 24, 2018.
'Star Wars'-like droids, technology may not be too far off, New York Daily News, Sep. 27, 2017.

Apple Swift Playgrounds 2.0 Released, Comes With Playground Subscription and New Robots, Gadgets 360, NDTV, Jan. 25, 2018.
IBM Research Creates Artificial Intelligence Cardboard Robot, Disruptive Tech TV, Nov. 11, 2016.
Swift Playgrounds 2 Adds Third Party Subscriptions, New Robots, Mac Observer, Jan. 25, 2018.
TJBot - Using Raspberry Pi With Watson, iProgrammer, Nov. 13, 2016.
From consumption to creation: IBM Malaysia supports MDEC 'digital maker' drive, Computer World, Aug. 29, 2017.
IBM and MDEC partner up to push for a digitally savvy society, Marketing Interactive, Aug. 7, 2017.
Put the Watson AI into Your Raspberry Pi with IBM's Free(ish) Embedded Development Platform, All About Circuit, Nov. 17, 2016.
How to Build a Robot with IBM Watson Smarts, Electronics 360, Nov. 21, 2016.

SELECTED INVITED TALKS

Beyond WWDC 2017, Apple's World Wide Developer Conference | June 5 - 9 | San Jose, CA
TJBot Swift Playground

SXSW 2017 | March 9-18 | Austin, TX
Build a TJBot and Take Him Home

World of Watson 2016 | October 24 - 27 | Vegas, NV
Watson Globe, Transforming a meeting room into a cognitive room

developerWorks Open | February 22, 2017 | Video Broadcast
TJBot and Embodied Cognition