Alexander J. Quinn ▪ Curriculum Vitae

alexanderjquinn@gmail.com

Overview	Full stack software engineer (24 years): future of work, educational technology, AR/VR/XR, interaction design.

Education **University of Maryland**, College Park, MD
PhD, Computer Science, August 2014
Topic: Crowdsourcing and human computation for decision support
Committee: Ben Bederson (advisor), Hal Daumé III, Jeffrey S. Foster, Atif Memon, Philip Resnik, Ben Shneiderman

University of Maryland, College Park, MD
MS, Computer Science, June 2009

University of Washington, Seattle, WA
BS, with Distinction, Computer Science, June 2002

Employment 8/2014 – 5/2024 **Purdue University**, West Lafayette, IN
Assistant Professor of Electrical & Computer Engineering

8/2006 – 8/2014 **University of Maryland**, College Park, MD
Graduate Research Assistant in Computer Science

5/2007 – 9/2007 **Library of Congress**, Washington, DC
Software Development Intern, Office of Strategic Initiatives (OSI)

7/2004 – 7/2006 **High School of the University of Hyogo**, Hyogo, Japan
English Teacher, Japan Exchange and Teaching (JET) Programme

7/2003 – 7/2004 **Nordstrom, Inc.**, Seattle, WA
Programmer, Inventory Systems Division

Patents Adaptive Tutoring System for Machine Tasks in Augmented Reality
Application #: 17/517,949 (pending)
Inventors: Karthik Ramani, Gaoping Huang, <u>Alexander J. Quinn</u>, Yuanzhi Cao

Software products **Restaurant food safety inspections (web site)**, June 2013
Summary: web-scraped inspection reports from 90 health departments throughout the US
Process: developed architecture and fully-documented API for web scrapers
Supervisors: Prof. Ginger Zhe, Prof. Phillip Leslie, Prof. Ben Bederson
Role: lead developer, supervising 3 other developers
Impact: Hazel Analytics, Inc. was founded in 2014 on my technology foundation; acquired in 2022 by Ecolab, Inc.

A Breath of Spring / Haft Awrang – Smithsonian Institution Sackler Gallery, May 2011
Summary: tabletop applications to view (slide) a 14th century Chinese calligraphy scroll and a 15th century painted Persian manuscript
Process: worked with curators to develop annotations and respectful presentation
Supervisors: Prof. Neil Fraistat and Dave Lester
Role: sole developer
Impact: publically deployed in the museum for over 2 years (5/2011 to 10/2013)

StoryKit - iOS App Store, September 2009
Summary: mobile application for allowing children to create and share electronic storybooks

Process:	designed in collaboration with child and elderly (grandparent) design partners
Supervisors:	Prof. Allison Druin, Prof. Ben Bederson
Role:	sole developer
Impact:	>200K users; part of education initiatives of Apple and Canada; NY Times mention

World Digital Library – US Library of Congress, Summer 2007

Summary:	digital library operated by UNESCO and the US Library of Congress
Process:	$3 million effort resulting in the initial "prototype" of the site
Supervisors:	Michelle Rago, Dr. John Van Oudenaren
Role:	interaction designers, temporal dynamic query interface used on the landing page
Impact:	publically deployed; presented at FOSS4G 2007 conference

Teaching (instructor)

Advanced C Programming, Purdue University
Spring 2024, Spring 2023, Fall 2022, Spring 2022, Spring 2021, Spring 2020, Spring 2019, Fall 2017, Fall 2016, Fall 2015, Fall 2014.

Data Structures, Purdue University
Spring 2017, Spring 2017.

Crowd-Powered Systems, Purdue University
Spring 2017, Spring 2017.

Human-Computer Interaction, Purdue University
Spring 2018, Spring 2016.

Software Engineering Tools, Purdue University
Fall 2018

Mentoring

PhD graduates
Abdullah Alshaibani, PhD 8/2021 – Kuwait University, Assistant Professor
Gaoping Huang, PhD 5/2021 – Tencent
Venkata Krishna Chaithanya Manam, PhD 4/2023 – Reveal.ai
Meng-Han Wu, PhD 8/2021 – Google

MS students advised – graduated
Mohammed Metwaly, MS 4/2024 – continuing as PhD student with new advisor
Apeksha Kumavat, MS 5/2016 – Gatik, Co-founder / Chief Engineer
Sylvia C. Carrell, 5/2018 – Sandia National Laboratories

Industry experience

Nordstrom, Inc., programmer analyst, 2003-2004
Created and maintained business intelligence applications for the company's inventory management and merchandising decision processes.

University of Washington School of Dentistry, technical consultant, 2002
Set up experimental apparatus, developed tools, and helped with experiment design for an orthodontics study that used computer psychometrics to measure subjects' perceptions about different facial shapes (e.g. convex, concave, etc.). The project was directed by Prof. H. Asuman Kiyak.

OlympusNet, developer, 2000-2003
Developed desktop and server applications for a regional internet service provider.

Grants

1. **National Science Foundation**, CNS (Division Of Computer and Network Systems) Core: Medium.

Title	Panoptes: Next Generation Multi-Perspective Video Delivery at Internet Scale.
Team	Sanjay Rao, PI; Alexander J. Quinn, Co-PI; Ramesh Govindan, Co-PI; Antonio Ortega, Co-PI
Date	October 1 2020
Budget	$1,200,000 (Quinn: $300,000)

2. **National Science Foundation**, Convergence Accelerator: B1 (Future Jobs and AI).

Title	Skill-XR: An Affordable and Scalable X-Reality (XR) Platform for Skills Training and Analytics in Manufacturing Workforce Education
Team	Karthik Ramani, PI; Kylie Peppler, Co-PI; Thomas Redick, Co-PI; Alexander J. Quinn, Co-PI; Niklas Elmqvist, Co-PI
Date	September 1, 2020
Budget	$1,470,935 (shared)

3. **National Science Foundation**, Future of Work at the Human-Technology Frontier (FW-HTF).

Title	Pre-Skilling Workers, Understanding Labor Force Implications and Designing Future Factory Human-Robot Workflows Using a Physical Simulation Platform
Team	Karthik Ramani, PI; Alexander J. Quinn, Co-PI; Thomas Redick, Co-PI; Shimon Nof, Co-PI; Kylie Peppler, Co-PI; Daron Acemoğlu, Co-PI
Date	October 1, 2018
Budget	$2,500,000 (Quinn: $368,000)

4. **Purdue Research Foundation**, Engineering Faculty Conversation Seed Grant.

Title	HRM-II: Humans-Robots-Machines with Spatial and Location Aware Interactive Intelligence
Team	Karthik Ramani, PI; David Cappelleri Co-PI; James V. Krogmeier Co-PI
Date	April 2018
Budget	≈$75,000 (Quinn: $14,719)

5. **Google**, Faculty Research Award.

Title	Man with machine in the battle against fake consumer reviews
Team	Alexander J. Quinn, PI; Saurabh Bagchi, Co-PI
Date	February 2015
Budget	$52,554 (Quinn: $26,277)

Publications

M. Wu, A. Ipsita, G. Huang, K. Ramani, <u>A. Quinn</u>. 2024. ImpersonatAR: Using Embodied Authoring and Evaluation to Prototype Multi-Scenario Use Cases for Augmented Reality Applications. In *Journal of Computing and Information Science in Engineering (JCISE)*. 14 pages.

A. Ipsita, R. Duan, H. Li, S. Chidambaram, Y. Cao, M. Liu, <u>A. Quinn</u>, K. Ramani. 2024. The Design of a Virtual Prototyping System for Authoring Interactive Virtual Reality Environments From Real-World Scans. In *Journal of Computing and Information Science in Engineering (JCISE)*. American Society of Mechanical Engineers (ASME). 17 pages.

A. Unmesh, R. Jain, J. Shi, V. K. C. Manam, H. Chi, S. Chidambaram, <u>A. Quinn</u>, K. Ramani. 2023. Interacting objects: A dataset of object-object interactions for richer dynamic scene representations. In *IEEE Robotics and Automation Letters*. IEEE. 8 pages.

V. K. C. Manam, J. D. Thomas, <u>A. J. Quinn</u>. 2021. Tasklint: Automated detection of ambiguities in task instructions. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP). AAAI*. 13 pages. [Acceptance rate: 26%]

A. Alshaibani, <u>A. J. Quinn</u>. 2021. Pterodactyl: Two-Step Redaction of Images for Robust Face Deidentification. In *Proceedings of the AAAI Conference on Human Computation and Crowdsourcing (HCOMP)*. Association for the Advancement of Artificial Intelligence (AAAI). 8 pages. [Acceptance rate: 27.6%]

G. Huang, X. Qian, T. Wang, F. Patel, M. Sreeram, Y. Cao, K. Ramani, <u>A. J. Quinn</u>. 2021. AdapTutor: An Adaptive Tutoring System for Machine Tasks in Augmented Reality. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2021)*. Association for Computing Machinery (ACM). 15 pages. [Acceptance rate: 26.3%]

G. Huang, M. Wu, <u>A. J. Quinn</u>. 2021. Task Design for Crowdsourcing Complex Cognitive Skills. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI EA)*. ACM. 7 pages. [Acceptance rate: 21%]

A. Alshaibani, S. Carrell, L. Tseng, J. Shin, <u>A. J. Quinn</u>. 2021. Privacy-Preserving Face Redaction Using Crowdsourcing. In *Proceedings of the 8th Conference on Human Computation and Crowdsourcing (HCOMP)*. Association for the Advancement of Artificial Intelligence (AAAI). 10 pages. [Acceptance rate: 27%]

G. Huang, P. S. Rao, M. Wu, M. Wadhawan, S. Y. Nof, S. Chandrasegaran, K. Ramani, <u>A. J. Quinn</u>. 2020. VIPO: Spatial-Visual Programming with Functions for Robot-IoT Workflows. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2020)*. 13 pages. ACM. [Acceptance rate: 24%]

P. O. Dusadeerungsikul, M. Sreeram, X. He, A. Nair, K. Ramani, <u>A. J. Quinn</u>, S. Y. Nof. 2019. Collaboration Requirement Planning Protocol for HUB-CI in Factories of the Future. In *25th International Conference on Production Research*.

V. K. C. Manam, D. Jampani, M. Zaim, M. Wu, <u>A. J. Quinn</u>. 2019. TaskMate: A Mechanism to Improve the Quality of Instructions in Crowdsourcing. In *Companion Proceedings of the 2019 World Wide Web Conference (WWW '19 Companion)*. May 13–17, 2019, San Francisco, CA, USA. ACM. 10 Pages.

V. K. C. Manam, <u>A. J. Quinn</u>. 2018. WingIt: Efficient Refinement of Unclear Task Instructions. In *Proceedings of the 7th AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2018)*. AAAI. 11 pages. [Acceptance rate: 29.3%, 22/75]

M. Wu, <u>A. J. Quinn</u>. 2017. Confusing the crowd: Task instruction quality on Amazon Mechanical Turk. In *Proceedings of the 5th AAAI Conference on Human Computation and Crowdsourcing (HCOMP '17)*. AAAI. 10 pages. [Acceptance rate: 29%]

G. Huang, <u>A. J. Quinn</u>. 2017. BlueSky: crowd-powered uniform sampling of idea spaces. In *Proceedings of the 2017 ACM SIGCHI Conference on Creativity and Cognition (C&C 2017)*. ACM. 10 pages. [Acceptance rate: 29%]

A. Kumavat, <u>A. J. Quinn</u>. 2016. Show Me More! Worker-guided Privacy Filtering for Crowd Video Annotation. In *Workshop on Human Computation for Image and Video Analysis (GroupSight) at the AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2016)*. AAAI. 4 pages.

G. Huang, <u>A. J. Quinn</u>. 2015. BlueSky: Charting entire idea spaces through iterative refinement. In *3rd AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2015)*. Extended abstract with demo/poster.

B. B. Bederson, G. Jin, P. Leslie, <u>A. J. Quinn</u>, B. Zou. 2016. Incomplete Disclosure: Evidence of Signaling and Countersignaling. In *American Economic Journal: Microeconomics*. American Economic Association, Pittsburgh, PA. 45 pages. https://www.aeaweb.org/articles?id=10.1257/mic.20150178

<u>A. J. Quinn</u>, B. B. Bederson. 2014. AskSheet: Efficient Human Computation for Decision Making with Spreadsheets. *In Proceedings of ACM Conference on Computer Supported Cooperative Work (CSCW '14)*. ACM. 11 pages. [Acceptance rate: 27%]

E. Bonsignore, <u>A. J. Quinn</u>, A. Druin, B. B. Bederson. 2013. Sharing stories in "in the wild": A mobile storytelling case study using StoryKit. In *ACM Transactions on Computer-Human Interaction (TOCHI)*. 20, 3, Article 18 (July 2013). 38 pages.

P. Resnik, O. Buzek, Y. Kronrod, C. Hu, <u>A. J. Quinn</u>, B. B. Bederson. 2013. Using Targeted Paraphrasing and Monolingual Crowdsourcing to Improve Translation. In *ACM Transactions on Intelligent Systems and Technology (TIST)*. 4, 3, Article 38 (July 2013). ACM. 21 pages.

B. B. Bederson, <u>A. J. Quinn</u>, A. Rose. 2012. SearchParty: Learning to Search in a Web-based Classroom. In *Proceedings of Educational Interfaces, Software, and Technology (EIST 2012) workshop (May 2012)*. ACM.

<u>A. J. Quinn</u>, B. B. Bederson. 2011. Human computation: a survey and taxonomy of a growing field. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '11)*. ACM. 10 pages. [Acceptance rate: 27%]

B. B. Bederson, <u>A. J. Quinn</u>. 2011. Web workers unite! addressing challenges of online laborers. In *CHI 2011 Extended Abstracts on Human Factors in Computing Systems alt.chi (CHI EA '11)*. ACM. 10 pages. [Acceptance rate: 59%]

P. Resnik, O. Buzek, C. Hu, Y. Kronrod, <u>A. Quinn</u>, B. B. Bederson. 2010. Improving translation via targeted paraphrasing. In *Proceedings of the 2010 Conference on Empirical Methods in Natural Language Processing (EMNLP '10)*. Association for Computational Linguistics (ACL), Stroudsburg, PA, USA. 11 pages. [Acceptance rate: 25%]

A. Druin, B. B. Bederson, <u>A. Quinn</u>. 2009. Designing intergenerational mobile storytelling. In *Proceedings of the 8th International Conference on Interaction Design and Children (IDC '09)*. ACM. 4 pages. [Acceptance rate: 32%]

B. B. Bederson, <u>A. Quinn</u>, A. Druin. 2009. Designing the reading experience for scanned multi-lingual picture books on mobile phones. In *Proceedings of the 9th ACM/IEEE-CS Joint Conference on Digital libraries (JCDL 2009)*. ACM. 4 pages. [Acceptance rate: 29%]

<u>A. J. Quinn</u>, C. Hu, T. Arisaka, A. Rose, B. B. Bederson. 2008. Readability of scanned books in digital libraries. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2008)*. ACM. 10 pages. [Acceptance rate: 22%]

T. D. Wang, C. Plaisant, <u>A. J. Quinn</u>, R. Stanchak, S. Murphy, B. Shneiderman. 2008. Aligning temporal data by sentinel events: discovering patterns in electronic health records. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*. ACM. 10 pages. [Acceptance rate: 22%]

E. Dingels, T. Fraser, <u>A. Quinn</u>. 2007. Generating Java Unit Tests with AI Planning. In *Proceedings of the 1st ACM International Workshop on Empirical Assessment of Software Engineering Languages and Technologies (WEASEL Tech 2007): held in conjunction with the 22nd IEEE/ACM International Conference on Automated Software Engineering (ASE)*. IEEE. 5 pages.

<u>A. Quinn</u>. 2002. An Interrogative Approach to Novice Programming. In *Proceedings of the IEEE 2002 Symposia on Human Centric Computing Languages and Environments (HCC 2002)*. IEEE Computer Society. 3 pages.

Professional Service

Program committee member
ACM Human Factors in Computing Systems (CHI), associate chair, 2017, 2024
AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2018-2022
ACM Conference on Creativity & Cognition (C&C), 2019
ACM Human Factors in Computing Systems (CHI), work-in-progress, 2012, 2013
IEEE SocialCom, Social Media for Human Computation workshop, 2012
The World Wide Web Conference (TheWebConf), 2022 (senior program committee)
ACM WWW, CrowdSearch workshop, 2012

Organizer
Workshops Co-Chair, AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2023
The 6th IEEE Workshop on Human-in-the-loop Methods and Human Machine Collaboration in BigData at IEEE HMData 2022
The 5th IEEE Workshop on Human-in-the-loop Methods and Human Machine Collaboration in BigData at IEEE HMData 2021
The 4th IEEE Workshop on Human-in-the-loop Methods and Human Machine Collaboration in BigData at IEEE HMData 2020
The 3rd IEEE Workshop on Human-in-the-loop Methods and Human Machine Collaboration in BigData at IEEE HMData 2019
Subjectivity, Ambiguity, and Disagreement (SAD) at TheWebConf 2019.
Subjectivity, Ambiguity, and Disagreement (SAD) at AAAI HCOMP 2018.

Reviewer
AAAI Main Conference, 2019
AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2016-2019
ACM Computer Supported Cooperative Work (CSCW), 2013-2015
ACM Conference on Creativity & Cognition (C&C), 2019
ACM Human Factors in Computing Systems (CHI), 2009, 2011-2019
ACM Transactions on Intelligent Systems and Technology (TIST), 2012
ACM Symposium on User Interface Software and Technology (UIST), 2015, 2018
AAAI Conference on Human Computation and Crowdsourcing (HCOMP), 2012, 2016
IEEE Internet Computing 2012
The Knowledge Engineering Review, 2015
Journal of the American Society for Information Science and Technology (JASIST), 2012, 2016
World Wide Web conference (WWW), Crowdsourcing track, 2016-2018

Editorial
CrowdResearch.org blog, member of editorial team, 2011-2013

Student volunteer
ACM Human Factors in Computing Systems (CHI), 2009, 2010

Thesis committees

PhD thesis committees
Fengming He, PhD, 6/2024
Juan Sebastian Martinez Carvajal, PhD, 5/2023
Venkata Krishna Chaithanya Manam, PhD 4/2023 *
Luis R Paredes Ayala, PhD, 11/2022
Subramanian Chidambaram, PhD, 11/2022
Terrell K. Glenn, PhD, 5/2022
Tianyi Wang, PhD, 2/2022
Xun Qian, PhD, 12/2021
Abdullah Alshaibani, PhD 8/2021 *
Meng-Han Wu, PhD 8/2021 *
Gaoping Huang, PhD 5/2021 *
Sang-Pil Kim, PhD, 12/2020
Yuanzhi Cao, PhD, 12/2020
Constantine J Roros, PhD, 10/2020
Guizhen Wang, PhD, 5/2020
Jieqiong Zhao, PhD, 5/2020
Mosab Abdulaziz Khayat, PhD, 4/2020
Terrell Glenn, PhD, 4/2020
Calvin Yau, PhD, 3/2020
Tommy Y. Chang, PhD, 2/2019
Ke Huo, PhD, 12/2018
Jiawei Zhang, PhD, 4/2018
Sang Ho Yoon, PhD, 11/2017
Sujin Jang, PhD, 4/2017
Cecil Kumar Piya, PhD, 12/2016

MS thesis committees
Mohammed Metwaly, MS 4/2024 *
Moiz S Rasheed, MS, 11/2023
William Pierce Maxam, MS, 4/2023
Geoffrey William Cramer, MS, 4/2023
Andrew Cavan Benton, MS, 3/2023
Vedapalle Sri Sai Swarup Reddy, MS, 4/2022
Gina Clepper, MS, 6/2021
Hank Huang, MS, 7/2020
Juan Sebastian Martinez Carvajal, MS, 4/2019
Sang-Won Shim, MS, 4/2019
Frederico Marcolino Quintao Severgnini, MS, 5/2018
Sylvia C. Carrell, 5/2018 *
Sachin Kumarswamy, MS, 5/2017
Ali Baigelenov, MS, 5/2017
Apeksha Kumavat, MS 5/2016 *

* Chair (my advisees)