

# LEESHA V. MALIAKAL

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## RESEARCH INTERESTS

I use design-based research methods to design, build, and test continual support systems, primarily situated in studio-based learning environments. My current interest is to study how technology might facilitate surfacing challenges and coordinating support within research communities of practice, and further explore possible learning and growth outcomes for students. I hope that these systems will enhance and extend the natural ways in which we reflect, learn, grow, and provide support for one another.

**Areas:** Computer Supported Cooperative Work, Social Computing, Crowdsourcing, Project Based Learning Environments

## EDUCATION

<b>Northwestern University</b> <i>PhD Student in Technology and Social Behavior (Computer Science + Communication Studies)</i> Advisor: Dr. Haoqi Zhang	<b>Evanston, IL</b> 2016-present
<b>Northwestern University</b> <i>Bachelor of Arts, Computer Science</i>	<b>Evanston, IL</b> 2010-2015

## GRANTS, HONORS, & AWARDS

<b>Segal Cluster Design Research Fellowship</b>	<i>Fall 2017-Winter 2018</i>
<b>Northwestern Post-Baccalaureate Research Fellowship</b>	<i>Summer 2015-Fall 2016</i>
<b>ACM Student Research Competition: Second Place Finalist</b>	<i>Summer-Fall 2015</i>
Submitted an abstract ( <i>CrowdCheer: Situational Crowdsourcing of Motivation for Runners</i> ) to Grace Hopper ACM SRC, participated in a poster session during the Grace Hopper Conference, advanced to final rounds to give a presentation and placed second out of 117 participants from across disciplines in Computer Science.	
<b>Northwestern Undergraduate Research Grant</b>	<i>Winter 2015</i>

## PUBLICATIONS & PRESENTATIONS

Spencer E. Carlson, **Leesha V. Maliakal**, Daniel G. Rees Lewis, Jamie Gorson, Elizabeth M. Gerber, and Matthew W. Easterday. (2018). *Defining and Assessing Risk Analysis: The Key to Strategic Iteration in Real-World Problem Solving*. ICLS 2018.

Daniel G. Rees Lewis, Jamie Gorson, **Leesha V. Maliakal**, Spencer E. Carlson, Elizabeth M. Gerber, Christopher K. Riesbeck, and Matthew W. Easterday. (2018). *Planning to Iterate: Supporting Iterative Practices for Real-world Ill-structured Problem-solving*. ICLS 2018.

Haoqi Zhang, Matthew Easterday, Elizabeth Gerber, Daniel Rees Lewis, **Leesha Maliakal** (2017). *Agile Research Studios: Orchestrating Communities of Practice to Advance Research Training*. CSCW 2017.

**Leesha Maliakal** (2015). *CrowdCheer: Situational Crowdsourcing of Motivation for Runners*. Grace Hopper ACM Student Research Competition

## RESEARCH PROJECTS

### **Continual Crowd Support in ARS**

*Fall 2017-present*

Studying the ability to support the shared regulation of learning in Agile Research studios by exploring ways to monitor student progress, recognize when students need additional supports, identify resources within the studio community that could support them, and optimize the routing of those support requests to the resources that have the expertise and ability to help.

### **Agile Research Studio (ARS) Model**

*Spring 2015-present*

Agile Research Studios (ARS) is a new socio-technical model for creating a research community of practice that socially shares regulation of learning to apprentice undergraduate teams into research at scale. ARS methodologies, social structures, and tools help groups learn better together so more undergraduates can conduct authentic research.

### **CrowdCheer**

*Fall 2014-present*

Studying the ability to leverage ad-hoc crowds for the completion of real-time tasks in the physical world, specifically, crowdsourcing motivation for marathon runners from the crowd of spectators. Studying methods of motivating crowdworker participation by scaffolding requests off of existing crowdworker behavior.

### **Assessment of Project Based Learning Skills in Iterative Design Learning Environments**

*Summer 2017*

Studied the ability to assess project based learning skills for novices working in highly ill-structured problem spaces, namely in the iterative design domain. We present a novice an expert model of iterative design practices, an assessment tool to evaluate student problem representations and plans, and an iterative process of developing expert and novice models through critique and iterative assessment.

### **Design of Iterative Design Learning Environments**

*Summer 2017*

Worked with a team of five researchers to design, evaluate, and iterate upon a learning environment design to support the development of iterative design skills in novice designers. The learning environment consisted of instructional design, and tools to scaffold externalizing design problem representations and project plans.

### **[mentor] Metacognitive Reflection in ARS**

*Fall 2017-present*

Studying how to support student awareness and reflection on their own research processes in ARS, and what prevents them from being effective.

### **[mentor] Skill Tracking & Growth in ARS**

*Spring 2016-present*

Studying how to support student help-seeking behaviors in ARS, with a goal of distributing support and growing skills across the community.

### **[mentor] Polaris**

*Fall 2016-Spring 2017*

To help undergraduates monitor and reflect on their research progress and to make effective use of mentor time, we introduce Polaris, a scaffolding tool that supports novice researchers diagnosing project issues on their own. Polaris guides undergraduate researchers through a reflective exercise using computer-based prompts and templates to create and diagnose issues in design arguments, which detail core hypotheses in design-based research projects.

## TEACHING + SERVICE

### **Design, Technology, Research Program**

**Evanston, IL**

*Co-Designer, Research Mentor*

*Spring 2015-present*

- Co-designing the Design, Technology, Research program, resulting in our paper on Agile Research Studios.
- Mentoring undergraduate researchers on independent research projects with a focus on supporting their research and regulation skill development needed to self-direct their own research.

### **Iterative Design Learning Environment in Design for America Program**

**Evanston, IL**

Curriculum Developer, Instructor

Summer 2017

- Instructed novice design students on Iterative Design process and best practices.
- Designed curriculum and lecture materials for iterative design instruction.

### ARS University + Toolkit

Evanston, IL

Co-Designer, Co-Facilitator

Winter 2017-present

- Developing a toolkit consisting of resources and tools to start an Agile Research Studio.
- Co-designing and co-facilitating an on-site visit for faculty to observe and learn how Agile Research Studios work, and how to start their own studio.

### Brave Initiatives

Chicago, IL

Curriculum Developer, Coding Instructor, Coach

Summer 2015-Summer 2017

- Developing a week-long curriculum for Brave Camp, a design thinking + coding camp focused on empowering high school girls to be agents of change in their local communities.
- Teaching coding modules to high school girls on basic web development skills and walking them through building their first website.

## EXPERIENCE

### Delta Lab

Evanston, IL

Post-Baccalaureate Research Fellow, Undergraduate Researcher

Summer 2014-Fall 2016

- Studying the crowdsourcing of motivation for marathon runners from spectators.
- Assisting in the design of the curriculum & processes for the Design, Technology, and Research program.
- Mentoring undergraduate researchers by scaffolding design, technology, and research skills.
- Studying real time, physical crowdsourcing and social computing systems.

### AT&T: TDP Emerging Technologies

Hoffman Estates, IL

Software Development Intern

Summer 2014

- Redesigned UI for development documentation pages, redesigned UI of testing and automation API tools using Angular.js.
- Developed a mobile web app for a nationwide employee hackathon with a team of four, received high marks.
- Migrated testing framework (Windows to Linux) and debugged 122 Jenkins jobs to resolve the running of 5000+ test scripts.

### Northwestern University Information Technology

Evanston, IL

Admin Lead Consultant, Technology Support Center

2010-2014

- Managed Lead Consultant team to ensure the development of resources, including the IT departmental website, internal Wiki, and knowledge base to improve content and usability for employees and end users.
- Supervised, evaluated, and mentored student consultants; strengthened teamwork skills among consultants to quickly resolve software issues and complete project work; organized and conducted testing of University systems prior to deployment.
- Reviewed applications and conducted interviews for Consultant and Lead Consultant positions.
- Fielded requests (calls, chats, and emails) from faculty, staff, and students across the University regarding technology concerns, provided hands-on support for configurations and virus remediation.

## TECHNICAL SKILLS

C/C++, C#, Objective C, Swift, iOS Development, MongoDB, Assembly, SQL, JavaScript, HTML5, CSS3, XML, PhoneGap, jQuery/jQuery Mobile, UNIX, Jenkins, VIM

## ACTIVITIES

Member of: Lean In Computer Science + Engineering, Anita Borg Institute Chicago Chapter, Systems Community, AAAI, ACM, ACM-W, Northwestern Chapters of IEEE, Women in Computing, Society of Women Engineers

## REFERENCES

- [Dr. Haoqi Zhang](#): Assistant Professor of Electrical Engineering and Computer Science (Northwestern University)
- [Dr. Darren Gergle](#): Associate Professor of Communication Studies (Northwestern University)
- [Dr. Matthew Easterday](#): Assistant Professor of Learning Sciences (Northwestern University)
- [Dr. Liz Gerber](#): Associate Professor of Design (Northwestern University)
- [Dr. Christopher Riesbeck](#): Associate Professor of Electrical Engineering and Computer Science (Northwestern University)