

# Michael Xieyang Liu

PH.D STUDENT · HCI RESEARCHER

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## Research Interests

Human-Computer Interaction, Sensemaking, Programming Support Tools, End-user Programming, Intelligent User Interfaces

## Education

### Ph.D. in Human-Computer Interaction *(in progress)*

*Aug. 2017 - Present*

CARNEGIE MELLON UNIVERSITY, HUMAN-COMPUTER INTERACTION INSTITUTE (HCII),  
SCHOOL OF COMPUTER SCIENCE (SCS)

*Pittsburgh, PA, USA*

• Advisor: Dr. Brad A. Myers & Dr. Aniket Kittur

### M.S. in Human-Computer Interaction

*Aug. 2017 - Dec. 2021*

CARNEGIE MELLON UNIVERSITY, HUMAN-COMPUTER INTERACTION INSTITUTE (HCII),  
SCHOOL OF COMPUTER SCIENCE (SCS)

*Pittsburgh, PA, USA*

### B.S. in Computer Science

*Sept. 2015 - Apr. 2017*

UNIVERSITY OF MICHIGAN, DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER  
SCIENCE

*Ann Arbor, MI, USA*

### B.S.E. in Electrical and Computer Engineering

*Sept. 2013 - Aug. 2017*

UNIVERSITY OF MICHIGAN – SHANGHAI JIAO TONG UNIVERSITY JOINT INSTITUTE


*Shanghai, China*

• Advisor: Dr. Jing Liu

## Publications

### PEER-REVIEWED CONFERENCE PAPERS

- [C.7] **Crystalline: Lowering the Cost for Developers to Collect and Organize Information for Decision Making.**  
**Michael Xieyang Liu**, Aniket Kittur, Brad A. Myers.  
*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022) (To appear).*
- [C.6] **Understanding How Programmers Can Use Annotations on Documentation.**  
Amber Horvath, **Michael Xieyang Liu**, River Hendriksen, Connor Shannon, Emma Paterson, Kazi Jawad, Andrew Macvean, Brad A. Myers.  
*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022) (To appear).*
- [C.5] 🏆 **To Reuse or Not To Reuse? A Framework and System for Evaluating Summarized Knowledge.**  
**Michael Xieyang Liu**, Aniket Kittur, Brad A. Myers.  
*Proceedings of the ACM on Human-Computer Interaction. 5, CSCW1, Article 166 (April 2021) (CSCW 2021).*  
**Best Paper Award** and **CMU SCS News Coverage**

- Tabs.do: Task-Centric Browser Tab Management.**  
 [C.4] Joseph Chee Chang, Yongsung Kim, Victor Miller, **Michael Xieyang Liu**, Brad A. Myers, Aniket Kittur.  
*Proceedings of the 34th Annual ACM Symposium on User Interface Software and Technology (UIST 2021).*
- Unakite: Scaffolding Developers' Decision-Making Using the Web.**  
 [C.3]  **Michael Xieyang Liu**, Jane Hsieh, Nathan Hahn, Angelina Zhou, Emily Deng, Shaun Burley, Cynthia Taylor, Aniket Kittur, Brad A. Myers.  
*Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST 2019).*  
**Best Paper Honorable Mention Award**
- Popup: Reconstructing 3D Video Using Particle Filtering to Aggregate Crowd Responses.**  
 [C.2] Jean Y. Song, Stephan J. Lemmer, **Michael Xieyang Liu**, Shiyang Yan, Juho Kim, Jason J. Corso, Walter S. Lasecki.  
*Proceedings of the 24th Annual ACM International Conference on Intelligent User Interfaces (IUI 2019).*
- Learning to Detect Human-Object Interactions.**  
 [C.1] Yu-Wei Chao, Yunfan Liu, **Xieyang Liu**, Huayi Zeng, Jia Deng.  
*2018 IEEE Winter Conference on Applications of Computer Vision (WACV 2018).*

## POSTERS

- An Exploratory Study of Web Foraging to Understand and Support Programming Decisions.**  
 [P.1] Jane Hsieh, **Michael Xieyang Liu**, Brad A. Myers, Aniket Kittur.  
*IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018).*

## WORKSHOP PAPERS

- UNAKITE: Support Developers for Capturing and Persisting Design Rationales When Solving Problems Using Web Resources.**  
 [W.2] **Michael Xieyang Liu**, Nathan Hahn, Angelina Zhou, Shaun Burley, Emily Deng, Aniket Kittur, Brad A. Myers.  
*DTSHPS'18 Workshop on Designing Technologies to Support Human Problem Solving, IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018).*
- Supporting Knowledge Acceleration for Programming from a Sensemaking Perspective.**  
 [W.1] **Michael Xieyang Liu**, Shaun Burley, Emily Deng, Angelina Zhou, Aniket Kittur, Brad A. Myers.  
*Sensemaking Workshop @ CHI Conference on Human Factors in Computing Systems (CHI 2018).*

## Professional Experience

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- UX Research Intern** with Dustin Smith, Todd Kulesza, and Sarah D'Angelo May. - Aug. 2020  
 GOOGLE Seattle, WA, USA  
 • Conducted qualitative research on Go developers' refactoring practices and their engagement with refactoring tools.
- Research Intern** (with Lisa Yu, Wan-Yi Lin, and Alessandro Oltramari) May. - Aug. 2019  
 RESEARCH AND TECHNOLOGY CENTER, BOSCH RESEARCH Pittsburgh, PA, USA  
 • Worked on crowd & AI-powered projects that aim to improve the safety and performance of autonomous vehicles.

## Research Experience

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**Graduate Research Assistant** (advised by Brad A. Myers & Aniket Kittur)

*Aug. 2017 - Present*

HUMAN-COMPUTER INTERACTION INSTITUTE, CARNEGIE MELLON UNIVERSITY

*Pittsburgh, PA, USA*

- Working on UNAKITE, a system that scaffolds developers in making decisions using information from various web sources and embedding their decision-making structures into their code.

**Research Assistant** (with Jodi Forlizzi, Roni Rosenfeld & Ryan Tibshirani)

*April. 2020 - Present*

DELPHI RESEARCH GROUP, CARNEGIE MELLON UNIVERSITY

*Pittsburgh, PA, USA*

- Working on the visualization team of the COVIDcast system (<https://covidcast.cmu.edu/>), which displays indicators related to COVID-19 activity level across the U.S. These indicators are derived from a variety of anonymized, aggregated data sources made available by multiple partners, including Facebook, Google, and Quidel. [Press coverage]

**Undergraduate Researcher**

*Mar. 2016 - May. 2017*

CROWDS AND MACHINES LAB, UNIVERSITY OF MICHIGAN

*Ann Arbor, MI, USA*

- Worked on crowd & AI-powered interdisciplinary projects that address novel and promising research questions.

**Research Assistant** (advised by Jia Deng)

*Sept. 2015 - Apr. 2016*

VISION & LEARNING LAB, UNIVERSITY OF MICHIGAN

*Ann Arbor, MI, USA*

- Worked on a computer vision based toolkit that boosts performance on human-object interaction detection by exploiting human-object spatial relations.

## Teaching Experience

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**Teaching Assistant – 05-410/05-610 User-Centered Research & Evaluation**

*Fall 2020*

HUMAN-COMPUTER INTERACTION INSTITUTE, CARNEGIE MELLON UNIVERSITY

**Teaching Assistant – 05-431/05-631 Software Structures for User Interfaces**

*Fall 2020*

HUMAN-COMPUTER INTERACTION INSTITUTE, CARNEGIE MELLON UNIVERSITY

**Teaching Assistant – 05-430/05-630 Programming Usable Interfaces**

*Fall 2019*

HUMAN-COMPUTER INTERACTION INSTITUTE, CARNEGIE MELLON UNIVERSITY

**Instructional Aide – EECS484 Database Management Systems**

*Winter 2017*

UNIVERSITY OF MICHIGAN, ANN ARBOR

**Instructional Aide – EECS484 Database Management Systems**

*Fall 2016*

UNIVERSITY OF MICHIGAN, ANN ARBOR

**Teaching Assistant – Vv255 Multivariate Calculus**

*Summer 2015*

UNIVERSITY OF MICHIGAN – SHANGHAI JIAO TONG UNIVERSITY JOINT INSTITUTE

## Students Mentored

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**Jane Hsieh**

*Summer 2018 – Spring 2019*

OBERLIN COLLEGE STUDENT (CURRENTLY A CMU ISR PHD. CANDIDATE)

- Worked on studying programmers' web-foraging behaviors. Contributed to the development of the UNAKITE system.

**Emily Deng**

*Fall 2017*

CMU MASTER'S STUDENT

- Worked on designing and carrying out interview studies with programmers that probe their programming behaviors and needs.

**Shaun Burley**

*Fall 2017*

CMU MASTER'S STUDENT

- Worked on designing and carrying out interview studies with programmers that probe their programming behaviors and needs.

## Selected Honors, Grants, Awards & Coverage

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<b>CMU SCS News Coverage on our CSCW 2021 Best Paper:</b> “CMU Researchers Develop Tool To Help Determine When To Reuse Content”	<i>Nov. 2021</i>
<b>Best Paper Award</b> , 24th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2021)	<i>Oct. 2021</i>
<b>CMU News Coverage on COVIDcast:</b> “Carnegie Mellon Unveils Five Interactive COVID-19 Maps”	<i>Apr. 2020</i>
<b>Best Paper Honorable Mention Award</b> , 32nd Annual ACM Symposium on User Interface Software and Technology (UIST 2019)	<i>Oct. 2019</i>
<b>SHF: Small: Knowledge Acceleration for Programming (\$500,000 over three years)</b> , NSF	<i>Jun. 2018</i>
<b>James B. Angell Scholar</b> , 94th Annual Honors Convocation, University of Michigan	<i>Mar. 2017</i>
<b>EECS Scholar Award</b> , 2017 EECS Honors & Awards Reception, University of Michigan	<i>Mar. 2017</i>
<b>2016 Summer Undergraduate Research Experience (SURE) program</b> , University of Michigan	<i>May. 2016</i>
<b>Tang-Junyuan Fellowship (Top 2/250, \$50,000)</b> , UM-SJTU Joint Institute	<i>Jul. 2015, Jul. 2016</i>
<b>Dean’s List</b> , University of Michigan	<i>Dec. 2015, Apr. 2016</i>
<b>Basic Teaching Assistant Certificate</b> , Center for Learning and Teaching, UM-SJTU Joint Institute	<i>Aug. 2015</i>
<b>Dean’s List</b> , UM-SJTU Joint Institute	<i>Dec. 2013, Aug. 2014, Dec. 2014, Aug. 2015</i>
<b>Fellowship for Outstanding Academic Performance</b> , Shanghai Jiao Tong University	<i>Jun. 2015</i>
<b>Meritorious Winner (Acceptance: 9%)</b> , COMAP Mathematical Contest in Modeling	<i>Apr. 2015</i>

## Professional Service

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### ACADEMIC SERVICE

<b>Associate Chair</b>	ACM CHI 2020 Late Breaking Work Track
<b>Paper Reviewing</b>	<b>Conferences:</b> CHI (2019, 2020, 2021, 2022), CSCW (2019, 2020, 2021, 2022), UIST (2019, 2020, 2021), VAST (2020)

### DEPARTMENTAL AND COMMUNITY SERVICE

<b>Committee Member</b>	CMU HCII Faculty Lunch Organization Committee (2019-2020)
<b>Committee Member</b>	CMU HCII Ph.D. Student Lounge Committee (2019-2020)

## Languages & Technical Skills & Courses

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<b>Languages</b>	<b>English</b> - Native or bilingual proficiency, <b>Chinese (Mandarin)</b> - Native or bilingual proficiency, <b>German</b> - Limited working proficiency
<b>Programming</b>	HTML/Javascript/CSS, Python, SQL, C/C++, Swift, Java, LaTeX, etc.
<b>Web &amp; App Development</b>	React, Angular, Redux, Bootstrap, Node.JS, PHP, Ionic, etc.
<b>Deep Learning &amp; AI</b>	Pytorch, Tensorflow, ml5.js
<b>Courses</b>	Machine Learning, Deep Learning, Database Management Systems, Information Security, Web Development, Advanced User Interfaces