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*

Publications

Peer-reviewed Conference Papers

[C.9] **Wigglite: Low-cost Information Collection and Triage.**
Michael Xieyang Liu, Andrew Kuznetsov, Yongsung Kim, Joseph Chee Chang, Aniket Kittur, Brad A. Myers.
Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST 2022).

[C.8] **Freedom to Choose: Understanding Input Modality Preferences of People with Upper-body Motor Impairments for Activities of Daily Living.**
Franklin Mingzhe Li, **Michael Xieyang Liu**, Yang Zhang, Patrick Carrington.
Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2022).

[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).

[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).

[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**

[C.4] **Tabs.do: Task-Centric Browser Tab Management.**
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).

[C.3] **Unakite: Scaffolding Developers' Decision-Making Using the Web.**
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

[C.2] **Popup: Reconstructing 3D Video Using Particle Filtering to Aggregate Crowd Responses.**
Jean Y. Song, Stephan J. Lemmer, **Michael Xieyang Liu**, Shiyan Yan, Juho Kim, Jason J. Corso, Walter S. Lasecki.
Proceedings of the 24th Annual ACM International Conference on Intelligent UserInterfaces (IUI 2019).

[C.1] **Learning to Detect Human-Object Interactions.**
Yu-Wei Chao, Yunfan Liu, **Xieyang Liu**, Huayi Zeng, Jia Deng.
2018 IEEE Winter Conference on Applications of Computer Vision (WACV 2018).

Posters

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

Workshop Papers

[W.2] **UNAKITE: Support Developers for Capturing and Persisting Design Rationales When Solving Problems Using Web Resources.**
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).

[W.1] **Supporting Knowledge Acceleration for Programming from a Sensemaking Perspective.**
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

Research Intern *May. - Aug. 2022*
Microsoft Research *Redmond, WA, USA (Remote)*

UX Research Intern with Dustin Smith, Todd Kulesza, and Sarah D'Angelo *May. - Aug. 2020*
Google *Seattle, WA, USA (Remote)*
- 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

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 - April. 2021*
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.

Selected Honors, Grants, Awards & Coverage

CMU SCS News Coverage on our CSCW 2021 Best Paper: "CMU Researchers Develop Tool To Help Determine When To Reuse Content" *Nov. 2021*

Best Paper Award, 24th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2021) *Oct. 2021*

Special Recognitions for Outstanding Reviews, 34th Annual ACM Symposium on User Interface Software and Technology (UIST 2021) *June. 2021*

CMU News Coverage on COVIDcast: "Carnegie Mellon Unveils Five Interactive COVID-19 Maps" *Apr. 2020*

Best Paper Honorable Mention Award, 32nd Annual ACM Symposium on User Interface Software and Technology (UIST 2019) *Oct. 2019*

SHF: Small: Knowledge Acceleration for Programming (*$500,000 over three years*), NSF *Jun. 2018*

James B. Angell Scholar, 94th Annual Honors Convocation, University of Michigan *Mar. 2017*

EECS Scholar Award, 2017 EECS Honors & Awards Reception, University of Michigan *Mar. 2017*

2016 Summer Undergraduate Research Experience (SURE) program, University of Michigan *May. 2016*

Tang-Junyuan Fellowship (Top 2/250, *$50,000)*, UM-SJTU Joint Institute — *Jul. 2015, Jul. 2016*

Dean's List, University of Michigan — *Dec. 2015, Apr. 2016*

Basic Teaching Assistant Certificate, Center for Learning and Teaching, UM-SJTU Joint Institute — *Aug. 2015*

Dean's List, UM-SJTU Joint Institute — *Dec. 2013, Aug. 2014, Dec. 2014, Aug. 2015*

Fellowship for Outstanding Academic Performance, Shanghai Jiao Tong University — *Jun. 2015*

Meritorious Winner (Acceptance: 9%), COMAP Mathematical Contest in Modeling — *Apr. 2015*

Students Mentored

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.

Teaching Experience

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

Professional Service

Academic Service

Associate Chair — **ACM CHI** 2020 Late Breaking Work Track

Paper Reviewing — **Conferences: CHI** (2019, 2020, 2021, 2022), **CSCW** (2019, 2020, 2021, 2022), **UIST** (2019, 2020, 2021, 2022), **IUI** (2020), **VAST** (2020)
Journal: TOCHI (2022)

Departmentaland Community Service

Committee Member REU (Research Experience for Undergraduate) Admissions Committee (2021-2022)
Committee Member CMU HCII Faculty Lunch Organization Committee (2019-2020)
Committee Member CMU HCII Ph.D. Student Lounge Committee (2019-2020)

Languages & Technical Skills & Courses

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