

# FARIA HUQ

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## RESEARCH INTEREST

- Human-in-the-loop LLM agent
- Personalization for LLM systems
- Autonomous Web/App Agent
- Novel Interaction for LLM systems

## EDUCATION

- **Doctor of Philosophy** August '22 - Present  
🏛 : School of Computer Science, Carnegie Mellon University  
PhD Supervisor : Prof. Hirokazu Shirado
- **Bachelor of Science in Computer Science and Engineering** 2016 - 2021  
🏛 : Bangladesh University of Engineering and Technology, Dhaka  
(Academic Session Delay due to COVID-19 pandemic)  
Thesis Dissertation: Review4Repair: Code Review Aided Automatic Program Repairing

## WORK EXPERIENCE

- **Student Researcher, Google Deepmind** June '24 - November '24  
👤 Supervisors : Dr. Will Bishop, Dr. Oriana Riva  
Project: Teaching UI Agents from Human Feedback
- **Research Intern, CMU HCII** September '21 - December '21  
👤 Supervisor: Prof. David Lindlbauer
- **Summer Geometry Institute Fellow, MIT CSAIL** July '21 - August '21  
🏛 : MIT Geometric Data Processing group (acceptance rate: 5.58%)  
👤 : Prof. Justin Solomon (MIT), Dr. Tal Shnitzer (MIT), Prof. Nina Miolane (UCSB), Prof. Tolga Birdal (Imperial College)  
Project: 3D Shape Correspondence via Probabilistic Partial Synchronization of Functional Maps & Riemannian Geometry [Technical Report]
- **Research Assistant, Tero Labs** October '20 - April '21  
👤 Supervisor: Dr. Nazmus Saquib  
Project: Embodied Mathematics

## PUBLICATIONS & PREPRINTS

1. *CowPilot: A Framework for Autonomous and Human-Agent Collaborative Web Navigation.*  
**F Huq**, ZZ Wang, FF Xu, T Ou, S Zhou, JP Bigham\*, G Neubig\* ([Website](#)). Under Review at NAACL Demo Track, 2025.
2. *NoTeeline: Supporting Real-Time Notetaking from Keypoints with Large Language Models.*  
**F Huq**, A Samee, DC Lin, XA Tang, JP Bigham. ([ArXiv 2409.16493](#)). **Accepted** at IUI 2025.
3. *DreamStruct: Understanding Slides and UIs via Synthetic Data Generation.*  
YH Peng, **F Huq**, Y Jiang, J Wu, XY Li, JP Bigham, A Pavel. **Accepted** at ECCV 2024.
4. "This really lets us see the entire world:" Designing a conversational telepresence robot for homebound older adults.  
Y Hu, L Stegner, Y Kotturi, C Zhang, YH Peng, **F Huq**, Y Zhao, JP Bigham, B Mutlu. **Accepted** at DIS 2024, ([doi](#))
5. *graphiti: Sketch-based Graph Analytics for Images and Videos.*  
N Saquib, **F Huq**, SA Haque. **Accepted** at CHI 2022 (direct accept, rate: 12.5%), ([doi](#))
6. *Review4Repair: Code Review Aided Automatic Program Repairing.*  
**F Huq**, M Hasan, MAH Haque, S Mahbub, A Iqbal, T Ahmed. **Published** in Information and Software Technology, 2021 ([doi](#))
7. *A Tale on Abuse and Its Detection over Online Platforms, Especially over Emails: From the Context of Bangladesh.*  
I Haque, R Adnin, S Afroz, **F Huq**, S Mahbub, ABM Islam. **Published** in NSysS 2021 (acceptance rate: 16.67%), ([doi](#))
8. *Riemannian Functional Map Synchronization for Probabilistic Partial Correspondence in Shape Networks.*  
**F Huq**, A Dey, S Yusuf, D Bazazian, T Birdal, N Miolane. ([ArXiv 2111.14762](#)), ([blog](#))
9. *Static and Animated 3D Scene Generation from Free-form Text Descriptions.*  
**F Huq**, N Ahmed, A Iqbal. ([ArXiv 2010.01549](#))

## WORKSHOPS & POSTERS

1. *What's important here?: Opportunities and Challenges of LLM in retrieving information from Web Interface.* **F Huq**, JP Bigham, N Martelaro. Ro-FoMo: Robustness of Few-shot and Zero-shot Learning in Large Foundation Models NeurIPS 2023 ([arxiv](#))
2. *MemAgent: A cache-inspired framework for aligning LLM Web Agent with User Goal.*  
**F Huq**, N Sakib, P Barai, SI Parisa, A Bhattacharjee, A Iqbal. CMU Agent Workshop 2024, ([pdf](#))
3. *How well do LLM Web Agents work for non-English Language?.*  
A Muhtasim, A Bhattacharjee, A Bhattacharjee, **F Huq** and R Shahriyar. CMU Agent Workshop 2024, ([pdf](#))

## ONGOING WORKS

1. **Human-Agent Collaborative Web Navigation** **March '24 - Present**  
 👤 *Project Members: Frank Xu, Shuyan Zhou, Zora Wang, Tianyue Ou, Jeffrey P. Bigham, Graham Neubig*  
 📌 : LLM, Web Interface, Agents  
 Web agents capable of conducting web activities on user behalf have gained attention for their task automation potential. However, they often fall short on complex tasks in dynamic, real-world contexts, making it essential for users to work collaboratively with the agent. We present CowPilot, a framework supporting both autonomous and human-agent collaborative web navigation, and evaluation across task success, user experience, and task efficiency. CowPilot eases human effort by starting with agents proposing next steps, meanwhile allowing humans to execute, pause, or reject agent-proposed steps and take alternative actions instead; supporting seamless action-taking between agent and human participants.
2. **Aligning web agents with ambiguous user intention** **February '24 - Present**  
 📌 : LLM, Web Interface, Agents *Not actively involved*  
 Large Language Models (LLMs) have shown promise as web agents, but their current limitations hinder their widespread adoption for general users. A critical issue behind this is the misalignment between user expectations and the agent's actions due to ineffective communication leading to a lack of crucial context required for successful task completion. To address this gap, we propose MemAgent, a novel pipeline for LLM-based web agents. Inspired by caching mechanisms, MemAgent incorporates a memory component to store task-specific information. This memory bank enables the LLM agent to proactively query for supplementary context relevant to the current task, thereby reducing user interaction overhead.

## COMMUNITY SERVICES

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1. **Editorial Board Member, ML@CMU Blog** **June '24 - Present**
2. **Student Volunteer, CMU FLAME Seminar** **January '24 - May '24**
3. **Peer Reviewer**  
 UIST '23, CHI LBW '22, Ro-FoMo Workshop @NeurIPS '23, ICBINB @NeurIPS '23, Instruction Workshop @NeurIPS '23, AI & HCI Workshop @ ICML '23, ICLR '25, CHI '25, IUI '25.
4. **Student Volunteer, CMU Accessibility Lunch** **May '23 - August '23**
5. **Student Volunteer at UIST 2021** **October '21**  
 I worked as a publicity SV and wrote a [blog](#) summarizing the conference.
6. **Advising Board Member at BWCSE (Bangladeshi Women in Computer Science and Engineering)** **January '21 - January '22**
7. **Batch Representative at BWCSE** **June '16 - December '20**
8. **Student Ambassador at Grameenphone GameJam 2017** **March '17**

## AWARDS

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- November '21** Technica Hackathon (Research Track): Selected to participate in the largest hackathon for underrepresented genders in the US organized by the Department of Computer Science, University of Maryland at College Park, and The Maryland Center for Women in Computing [[Demo](#)]
- January '19** BUET CSE Fest Hackathon: Champion in 'Cloud Computing' Category
- December '18** Banglalink SDG Hackathon: 1st Runners Up and was offered internship for building a solution to curb plastic pollution
- May '18** BUET CSE Fest Inter-University Hackathon: Champion in 'Mental Health' Category
- April '18** Anita's Moonshot Codeathon 2018: Special Mention for an Augmented Reality application to help women raise awareness against different kinds of vaginal infection (Top 8)
- March '18** MobilPro 2018: I was selected for the 5th international competition organized by the Faculty of Electronics, Telecommunications and Information Technology, Bucharest, Romania
- March '18** Internationally Featured Project in "Learn It, Girl", Third Edition (Top 12 out of 106). I was the only participant selected from Bangladesh as well.
- December '17** Banglalink Ennovators 2017: Finalist and was offered internship for building an application to support women empowerment (Top 20)
- December '17** Hackathon for Environmental Migrants: I was selected to participate in this specialised hackathon organized by Dr. Ingrid Boas, Assistant Professor at the Environmental Policy Group, Wageningen University and BBC Media Action