Gulnar Rakhmetulla

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HCI researcher with a Ph.D. in Computer Science from UC Merced, specializing in accessibility, text entry, and usability. My work combines user research, data analysis, and software development to design inclusive technologies and support student-centered learning. Here are my LinkedIn and Google Scholar pages.

Education

Ph.D. in Computer Science	University of California, Merced, US	2018–2022
M.S. in Advanced Control (with Distinction)	University of Sheffield, UK	2015–2016
B.S. in Information Systems (with Honors)	International IT University, Kazakhstan	2010–2014

Experience

Full-Time Faculty, College of Technology & Engineering **Irvine, CA, USA**
Westcliff University *2025 – Present*

Teach courses: TEM 600 Systems Engineering; TEM 620 Engineering Administration; TEM 630 Strategic Technology Management; TEM 640 Reliability Engineering; DEV 600 System Analysis and Design; MIS 540 Management Information Security; MIS 550 Big Data Analytics & Visualization; and OPM 600 Operations Management.

Develop interactive lectures with applied research, industry examples, and hands-on activities.

Research and Teaching Assistant **Merced, CA, USA**
University of California, Merced *2018 – 2022*

Conducted human-computer interaction research focused on accessibility, usability, and inclusive mobile text entry using mixed-method approaches.

Tought courses: Software Engineering (CSE 120, 4 semesters) and Human-Computer Interaction (CSE 155, 2 semesters).

Senior Lecturer **Almaty, Kazakhstan**
International Information Technology University *2016 – 2017*

Developed and taught undergraduate courses: Human-Computer Interaction, Information and Communication Technologies, Database and Client–Server Applications, and Fundamentals of Information Systems.

Publications (newest first)

1. **BezelBraille: A Braille-Inspired Bezel-Guided Virtual Keyboard for Low Vision and Blind Users**. In *Proc. ACM Hum.-Comput. Interact.* (**MobileHCI 2026**). Isna Alfi Bustoni, Jannatul Ferdous Srabonee, **Gulnar Rakhmetulla**, Ahmed Sabbir Arif. [Paper]
2. **Predicting Text Selection Time and Effort on Smartphones from Selection Characteristics**. In *Proc. of the 18th International Conference on PErvasive Technologies Related to Assistive Environments* (**PETRA 2025**). **Gulnar Rakhmetulla**, Ahmed Sabbir Arif. [Paper]
3. **GeShort: One-Handed Mobile Text Editing and Formatting with Gestural Shortcuts and a Floating Clipboard**. In *Proc. of the 2023 Mobile Human-Computer Interaction Conference* (**MobileHCI 2023**). **Gulnar Rakhmetulla**, Ahmed Sabbir Arif. [Paper][Presentation]
4. **Crownboard: One-Finger Crown-Based Smartwatch Keyboard for Users with Limited Dexterity** In *Proc. of the 2023 CHI Conference on Human Factors in Computing Systems* (**CHI 2023**). ACM, New

York, NY, USA, 22 pages. [Acceptance rate: 28%]
Gulnar Rakhmetulla, Ahmed Sabbir Arif. [Paper][Presentation]

5. **SwipeRing: Gesture Typing on Smartwatches Using a Segmented Qwerty Around the Bezel**
In *Proc. of the 47th Graphics Interface Conference* (**GI 2021**). Canadian Human-Computer Communications Society (CHCCS), Toronto, Ontario, Canada, 166–177. **[best paper award]** [Acceptance rate: 35%]
Gulnar Rakhmetulla, Ahmed Sabbir Arif. [Paper][Presentation]

6. **Using Action-Level Metrics to Report the Performance of Multi-Step Keyboards**
In *Proc. of the 47th Graphics Interface Conference* (**GI 2021**). Canadian Human-Computer Communications Society (CHCCS), Toronto, Ontario, Canada, 127–137. [Acceptance rate: 35%] [Paper][Presentation]
Gulnar Rakhmetulla, Ahmed Sabbir Arif, Steven Castellucci, I. Scott MacKenzie, Caitlyn Seim.

7. **TapStr: A Tap and Stroke Reduced–Qwerty for Smartphones**
In *Proc. of the 2020 ACM International Conference on Interactive Surfaces and Spaces* (**ISS 2020**). ACM, New York, NY, USA, 47–50. Mohammad Akbor Sharif,
Gulnar Rakhmetulla, Ahmed Sabbir Arif. [Extended Abstract] [Presentation]

8. **Senorita: A Chorded Keyboard for Sighted, Low Vision, and Blind Mobile Users**
In *Proc. of the 2020 CHI Conference on Human Factors in Computing Systems* (**CHI 2020**). ACM, New York, NY, USA, 1–13. [Acceptance rate: 24%]
Gulnar Rakhmetulla, Ahmed Sabbir Arif. [Paper] [Presentation]

9. **Put a Ring on It: Text Entry Performance on a Grip Ring Attached Smartphone**
In **MobileHCI 2018** *Workshop on Socio-Technical Aspects of Text Entry* (September 3, 2018). Barcelona, Spain, CEUR-WS.org/Vol-2183, 6–10.
Monwen Shen, **Gulnar Rakhmetulla**, Ahmed Sabbir Arif. [Position Paper]

10. **Enabling Input on Tiny/Headless Systems Using Morse Code**
Poster at Center for Cellular and Biomolecular Machines Open House (Oct 22, 2018). University of California, Merced, USA. Anna-Maria Gueorguieva, **Gulnar Rakhmetulla**, Ahmed Sabbir Arif. [Preprint on arXiv]

Core Skills

User Research Evaluation: Usability Testing, User Studies, Experimental Design, Mixed-Methods Research, Survey Design, Interviews, Focus Groups, Accessibility Evaluation, Requirements Elicitation
Human-Computer Interaction Input Systems: Mobile Text Entry, Virtual Keyboard Design, Predictive Text Systems, Gesture Typing, One-Handed Interaction, Wearable Input, Smartwatch Keyboards, Assistive Text Entry, Multilingual Input, Emoji Recommendation Systems
Data Analysis Statistical Modeling: Quantitative Data Analysis, Statistical Hypothesis Testing, Performance Metrics, Action-Level Modeling, SPSS, NCSS, Data Visualization
Technical Prototyping Skills: Java, Android Development, SQL, HTML/CSS, JavaScript, LaTeX, Figma, Interactive Prototyping

Awards

Catalyst for Change Award — **Westcliff University, USA**
SOAR 2025, LITE Center — *Oct. 2025*
Awarded for *Designing for Access: Inclusive Text Input on Mobile Devices*, recognizing work toward inclusive and accessible technology.

Gary Marsden Travel Awards 2023 — **ACM SIGCHI, USA**
ACM, Special Interest Group on Computer-Human Interaction — *$2,500 March 2023*

Fred and Mitzie Ruiz Fellowship — **Merced, California, USA**
University of California, Merced — *$1,000 May 2021*

Graduate Student Opportunity Program (GSOP) — **Merced, California, USA**
University of California, Merced — *$45,000 Sep. 2020*
Fellowship for the research on novel input methods for blind people and ultrasmall devices

EECS Bobcat Fellowship — **Merced, California, USA**
University of California, Merced — *$10,000 Jun. 2018, 2019*

EECS Travel Fellowship — **Merced, California, USA**
University of California, Merced — *$2,900 Jun. 2018*

International Scholarship — **Sheffield, UK**
University of Sheffield — *$3,800 Sep. 2015*

Center for International Programs — **Astana, Kazakhstan**
Bolashak International Scholarship to study abroad — *$80,000 Aug. 2015*

Presentations

1. Presented a work *"Predicting Text Selection Time and Effort on Smartphones from Selection Characteristics"*, at the PErvasive Technologies Related to Assistive Environments Conference (PETRA 2025). (June. 25, 2025). Corfu, Greece
2. Presented a work *"Crownboard: One-Finger Crown-Based Smartwatch Keyboard for Users with Limited Dexterity"*, at the CHI Conference on Human Factors in Computing Systems (CHI 2023). (Apr. 23, 2023). Hamburg, Germany
3. Presented a work *"SwipeRing: Gesture Typing on Smartwatches Using a Segmented Qwerty Around the Bezel"*, at the Graphics Interface Conference (GI 2021). (May 27, 2021). Burnaby, BC [virtual]
4. Presented a work *"Using Action-Level Metrics to Report the Performance of Multi-Step Keyboards"*, at the Graphics Interface Conference (GI 2021). (May 27, 2021). Burnaby, BC [virtual]
5. Presented a work *"TapStr: A Tap and Stroke Reduced-Qwerty for Smartphones"*, at the ACM International Conference on Interactive Surfaces and Spaces (ISS 2020). (Nov. 9 , 2020). Lisbon, Portugal [virtual]
6. Presented a work *"Senorita: A Chorded Keyboard for Sighted, Low Vision, and Blind Mobile Users"*, at the CHI Conference on Human Factors in Computing Systems(CHI 2020). (Apr. 25, 2020). Hawaii, USA [virtual]
7. Presented a work *"Novel Eyes-Free Text Entry Techniques for Mobile Devices"*, at the 2nd Annual Fall Symposium: Branches of Cognitive Science, CSSA. (Nov. 16, 2019). University of California, Merced, USA
8. Presented a work *"Put a Ring on It: Text Entry Performance on a Grip Ring Attached Smartphone"*, at MobileHCI Workshop on Socio-Technical Aspects of Text Entry. (Sep. 3, 2018). Barcelona, Spain

Professional Memberships and Services

1. Member, ACM (Association for Computing Machinery), 2017–Present.
2. Reviewer, CHI 2021–2026; DIS 2024–2025; MobileHCI 2024–2026; TEI 2022; IJHCI 2023; IMWUT 2023; ISS 2019–2022; IUI 2019–2021; and GI 2021.
3. Program Committee Member, Graphics Interface Conference (GI), 2021.
4. Program Committee Member, ACM ASSETS, 2026.