

# ZHEER XU

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## SHORT BIO

My research interests in **Human-Computer Interaction (HCI)** primarily focus on novel and efficient text input on mobile and emerging platforms (i.e., AR/VR headsets/glasses/wearables). I created **intelligent** and **user-centered** text input methods across different input modalities (e.g. tap typing, gesture typing, handwriting, etc.) by applying both **data-driven computational design** on typing interface and cutting-edge **GenAI and LM techniques** on underlying decoding algorithm.

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## EDUCATION

**Dartmouth College** *Sep 2018 - 2024 (Expected)*  
Ph.D. in Computer Science.  
Advisor: Prof. Xing-Dong Yang & Prof. Temiloluwa Prioleau  
Field: Human-Computer Interaction (**HCI**), particularly **text input powered by Generative AI**.

**Shanghai Jiao Tong University** *Sep 2014 - Jun 2018*  
B.S. in Computer Science and Technology

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## EXPERIENCE

**Google, Mountain View, CA** *Jun 2023 - Sep 2023*  
Student Researcher in *Android Input Research Team*, hosted by Shanqing Cai and Shumin Zhai.  
Significantly improved the usability, latency (60%+) and performance of a LLM-powered generative input feature for Gboard. Built a customized testing platform for user evaluation and conducted an in-lab study. Observed promising performance results and insightful user behavior findings.

**Google, Mountain View, CA** *Jun 2022 - Sep 2022*  
Research Intern in *Android Interface Research Team*, hosted by Shanqing Cai and Shumin Zhai.  
Designed and developed a LLM-powered generative input feature for Gboard. Conducted offline simulation to understand LLM's benefits and drawbacks by simulating different human input strategies.

**Meta Reality Labs, New York, NY** *(finished remotely)* *Sep 2021 - Dec 2021*  
Research Intern in *Input Exploration Team (CTRL-Labs)*, advised by Adam Berenzweig.  
Performed detailed and in-depth analysis on noisy sensor signals from users, and then optimized typing interface and decoding algorithm of a novel text input method targeted for AR/VR wearables.

**Microsoft Research, Redmond, WA** *(finished remotely)* *Jun 2020 - Sep 2020*  
Research Intern in *Software Engineering Group (RiSE)*, advised by Teddy Seyed.  
Designed, implemented, and evaluated a subtle and private pointing-selection method for ultra-small wearable devices (flat surface <1.5 square inch). Led to patent submission.

**Dartmouth College, Hanover, NH** *Jun 2017 - Sep 2017*  
Visiting undergraduate student in *XDiscovery Lab (now at SFU)*, advised by Xing-Dong Yang.  
Designed, developed and evaluated one-handed text entry for smartwatches by augmenting the band with low-cost and lightweight IR sensors. Led to award-winning publication at top HCI conference.

## SELECTED AWARDS

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<b>ACM UIST Best Paper Award</b> <i>ACM SIGCHI</i>	2019
<b>ACM CHI Honorable Mention Award (Top 5%)</b> <i>ACM SIGCHI</i>	2018
<b>Distinguished Graduate of Class 2018 (Top 10%)</b> <i>Shanghai Jiao Tong University</i>	2018

## PUBLICATIONS

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**Note:** ACM CHI & UIST are considered top tier venues in HCI for timely and impactful work.

### **Phrase-Gesture Typing on Smartphones**

*Proceedings of the ACM Symposium on User Interface Software and Technology (UIST'22)*

**Zheer Xu**, Yankang Meng, Xiaojun Bi, Xing-Dong Yang (*Acceptance Rate: 26.3%*)

### **BackSwipe: Back-of-device Word-Gesture Interaction on Smartphones**

*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'21)*

Wenzhe Cui, Suwen Zhu, Zhi Li, **Zheer Xu**, Xing-Dong Yang, IV Ramakrishnan, Xiaojun Bi (*Acceptance Rate: 26.3%*)

### **AccessibleCircuit: Adaptive Add-On Circuit Components for People with Blindness or Low Vision**

*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'21)*

Ruei-Che Chang, Wen-Ping Wang, Chi-Huan Chiang, Te-Yen Wu, **Zheer Xu**, Justin Luo, Bing-Yu Chen, Xing-Dong Yang (*Acceptance Rate: 26.3%*)

### **Project Tasca: Enabling Touch and Contextual Interactions with a Pocket-based Textile Sensor**

*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'21)*

Te-Yen Wu, **Zheer Xu**, Xing-Dong Yang, Steve Hodges, Teddy Seyed (*Acceptance Rate: 26.3%*)

### **BiTipText: Bimanual Eyes-Free Text Entry on a Fingertip Keyboard**

*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'20)*

**Zheer Xu**, Weihao Chen, Dongyang Zhao, Jiehui Luo, Te-Yen Wu, Jun Gong, Sicheng Yin, Jialun Zhai, Xing-Dong Yang (*Acceptance Rate: 24.3%*)

### **TipText: Eyes-free Text Entry on a Fingertip Keyboard**

*Proceedings of the ACM Symposium on User Interface Software and Technology (UIST'19)*

**Zheer Xu\***, Pui Chung Wong\*, Jun Gong, Te-Yen Wu, Aditya Shekhar Nittala, Xiaojun Bi, Jürgen Steimle, Hongbo Fu, Kening Zhu, Xing-Dong Yang (*Acceptance Rate: 24.4%*)

**Best Paper Award (Top 1%)**

### **WrisText: One-handed Text Entry on Smartwatch using Wrist Gestures**

*Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'18)*

Jun Gong, **Zheer Xu**, Qifan Guo, Teddy Seyed, Xiang 'Anthony' Chen, Xiaojun Bi, Xing-Dong Yang (*Acceptance Rate: 25.7%*)

**Honorable Mention Award (Top 5%)**

## PATENTS

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### **System, apparatus, and method for eyes-free text entry**

*International Publication No.: WO2021076889A1*

**Zheer Xu**, Jun Gong, Xiaojun Bi, Xing-Dong Yang

### **Smart fabric that recognizes objects and touch input**

*Publication No.: US 2022/0202112 A1*

Alemayehu Seyed, Stephen Edward Hodges, Te-Yen Wu, **Zheer Xu**

## SKILLS & SERVICE

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### **Programming**

#### **Skills**

C/C++, C#, Python, Java.

PyTorch, Huggingface, gRPC, Android & .NET Framework Development, Unity, Jupyter, Scikit-learn, Matplotlib

### **Academic Service**

Reviewer for CHI'20 - 23, UIST'20 - 23, IMWUT' 22.

### **Teaching Service**

Teaching Assistant for Smartphone Programming, Deep Learning, Operating System, and Artificial Intelligence.