Junhan Kong Curriculum Vitæ

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BIO

Junhan "Judy" Kong is a 4th-year PhD candidate in the Information School at the University of Washington. She is advised by Prof. Jacob O. Wobbrock and is a member of the ACE Lab and the DUB Group. She obtained her bachelor's and master's degrees in computer science from Carnegie Mellon University with an additional major in human-computer interaction (HCI) and minors in statistics and machine learning. Her research interests include **HCI**, **accessibility**, and **AI for personalization**. Her work leverages sensing and AI techniques to enable computer technologies to understand the varying abilities of their users, and to design, implement, and evaluate tools to make technologies accessible by adapting to these abilities.

EDUCATION

University of Washington, Seattle WA — Sep 2020 - Jun 2026 (expected)
Ph.D. in Information Science
Advisor: Jacob O. Wobbrock

Carnegie Mellon University, Pittsburgh PA — May 2019 - May 2020
Master of Science in Computer Science
Thesis: An Authoring Tool for Creating Interactive AR User Tutorials by Demonstration
Advisor: Jeffrey P. Bigham

Carnegie Mellon University, Pittsburgh PA — Aug 2015 - May 2019
Bachelor of Science in Computer Science
Additional major in Human-Computer Interaction, minors in Machine Learning and Statistics

RESEARCH EXPERIENCE

Personalized Input for Varying Motor Abilities — 2023 - present
University of Washington, with Jacob Wobbrock
Investigated user needs and preferences of personalizing gestures of people with upper-body motor impairments [6]; developing novel input techniques for personalized multimodal text entry for people with varying motor abilities.

Adaptive Readability under Situational Impairments — 2023 - present
Adobe (Research Intern), with Zoya Bylinskii and Tianyuan Cai
Investigated the impact of walking on mobile reading experiences, developed a system that provides personalized reading adaptations to walking using smartphone built-in motion and vision sensors [7] (paper under review).

Ability-Based Design Mobile Toolkit (ABD-MT) — 2021 - 2023
University of Washington, with Jacob Wobbrock and James Fogarty
Developed and evaluated an Android developer toolkit for creating mobile apps that observe users' abilities (touch, gesture, physical activity, attention) in real-time, allowing developers to inspect human

performance metrics and holistic ability summaries to inform interface adaptations through the API (paper under review).

Quantifying Touch to Characterize Fine Motor Abilities 2021
University of Washington, with Jacob Wobbrock and James Fogarty
Devised 15 touch metrics that quantified the touch process from touch down to touch up that can characterize varying fine motor abilities and specific challenges such as tremor and stiffness [3][5].

TutorialLens: Interactive AR Tutorial Authoring by Demonstration 2019 - 2020
Carnegie Mellon University (Master's Thesis), with Anhong Guo, Amy Pavel, and Jeffrey Bigham
Developed an authoring tool for creating AR user tutorials by narration and demonstration, that automatically detects, segments and records finger movement and device positions to provide AR visual guidance for novice users [2][4].

StateLens: Making Dynamic Touchscreens Accessible 2018 - 2019
Carnegie Mellon University (Undergrad Research Assistant), with Anhong Guo and Jeffrey Bigham
Collaboratively developed a computer vision pipeline that reconstructs dynamic touch interfaces from point-of-view videos to guide blind and low-vision users to access dynamic touchscreens [1].

AWARDS AND HONORS

Adobe Research Intern Project Expo Winner, Adobe Intern Project Expo 2023
Best Paper Nomination, ASSETS 2022
Special Recognitions for Outstanding Reviews, CHI 2022, UIST 2023
Boeing Blue Skies Award: Game Changer, CMU Undergrad Research Symposium 2019
University Honors for Academic Excellence, Carnegie Mellon University
Best Educational App, TartanHacks 2017
Social Impact Prize, TartanHacks 2016
Dean's List, Carnegie Mellon University, School of Computer Science
Fall 2015, Spring 2017, Fall 2017, Spring 2018, Fall 2018

PUBLICATIONS

[7] **Junhan Kong**, Tianyuan Cai, Zoya Bylinskii. Improving Mobile Reading Experiences while Walking Through Automatic Adaptations and Prompted Customization. In Adjunct Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology (UIST '23 Poster). Association for Computing Machinery, New York, NY, USA, Article 19, 1–3. https://doi.org/10.1145/3586182.3616666.

[6] Momona Yamagami, Alexandra A. Portnova-Fahreeva, **Junhan Kong**, Jacob O. Wobbrock, Jennifer Mankoff. How Do People with Limited Movement Personalize Upper-Body Gestures? Considerations for the Design of Personalized and Accessible Gesture Interfaces. In Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '23). Association for Computing Machinery, New York, NY, USA, Article 1, 1–15. https://doi.org/10.1145/3597638.3608430.

[5] **Junhan Kong**, Mingyuan Zhong, James Fogarty, Jacob O. Wobbrock. Quantifying Touch: New Metrics for Characterizing What Happens *During* a Touch. In The 24th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22), October 23–26, 2022, Athens, Greece. Association for Computing Machinery, New York, NY, USA. https://doi.org/10.1145/3517428.3544804. ***Best Paper Nomination***

[4] **Junhan Kong**, Dena Sabha, Jeffrey P. Bigham, Amy Pavel, Anhong Guo. 2021. TutorialLens: Authoring Interactive Augmented Reality Tutorials Through Narration and Demonstration. In Symposium on Spatial User Interaction (SUI '21). Association for Computing Machinery, New York, NY, USA, Article 16, 1–11. https://doi.org/10.1145/3485279.3485289.

[3] **Junhan Kong**, Mingyuan Zhong, James Fogarty, Jacob O. Wobbrock. 2021. New Metrics for Understanding Touch by People with and without Limited Fine Motor Function. In The 23rd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '21 Poster). Association for Computing Machinery, New York, NY, USA, Article 80, 1–4. https://doi.org/10.1145/3441852.3476559.

[2] **Junhan Kong**, Anhong Guo, Jeffrey P. Bigham. 2019. Supporting Older Adults in Using Complex User Interfaces with Augmented Reality. In The 21st International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '19 Demo). Association for Computing Machinery, New York, NY, USA, 661–663. https://doi.org/10.1145/3308561.3354593.

[1] Anhong Guo, **Junhan Kong**, Michael Rivera, Frank F. Xu, Jeffrey P. Bigham. 2019. StateLens: A Reverse Engineering Solution for Making Existing Dynamic Touchscreens Accessible. In Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST '19). Association for Computing Machinery, New York, NY, USA, 371–385. https://doi.org/10.1145/3332165.3347873.

PATENTS

Anhong Guo, **Junhan Kong**, Michael Rivera, Frank F. Xu, Jeffrey P. Bigham. StateLens: A Reverse Engineering Solution for Making Existing Dynamic Touchscreens Accessible. U.S. Provisional Patent Application 19/207, filed June 6, 2019.

TEACHING

Instructor

UW INFO 498 Special Topics in Informatics: Accessibility	Spring 2024

Teaching Assistant

UW HCID 520 User Interface Software and Technology	Winter 2023
UW INFO 380 Information Systems Analysis and Design	Autumn 2020, 2022, 2023
UW IMT 575 Data Science III: Scaling, Applications and Ethics	Spring 2022
UW IMT 596 & 597 MSIM Capstone	Winter 2021, Spring 2021
CMU 05-391 Designing Human-Centered Software	Fall 2017 - Fall 2019
CMU 15-122 Principles of Imperative Computation	Fall 2016 - Fall 2019

SERVICE

Reviewer

Special Recognitions: CHI 2022, UIST 2023
ASSETS 2023 Posters and Demos

Organizing Committee

ASSETS 2022 Web and Graphics Design Co-Chair
UW DUB Doctoral Colloquium 2023 Coordinator

Undergraduate Activities

CMU Undergraduate HCI Student Advisory Committee	Sep 2018 - May 2019
CMU Undergraduate Orientation Counselor	Aug 2018

SKILLS

Programming Languages: Python, C++, C, Java, Swift, Objective C, C#, F#, JavaScript, R, SQL
Tools & Platforms: ARKit, GPT, TensorFlow, OpenCV, PyTorch, AWS, Unity, CUDA, OpenMP, Hadoop, Spark
Hardware Prototyping & Fabrication: Processing, Arduino, PCB design, 3D printing