Nahyun Kwon

Website: nahyunkwon.github.io
Github: github.com/nahyunkwon

Email: nahyunkwon@tamu.edu
Mobile: +1-979-422-1648
College Station, TX, USA

Research Interests (Slides)

Human-Computer Interaction, Interactive System, Human-AI Collaboration, Human-in-the-Loop

I design & develop **AI-powered interactive systems** to make technologies and visual information more understandable and accessible for people.

Education

- **Texas A&M University** — TX, USA
  Ph.D. Student - Computer Science, Advisor: Dr. Jeeeun Kim — *Sep 2020 - Present*
- **Ewha Womans University** — Seoul, Korea
  B.S. - Computer Science, Advisor: Dr. Uran Oh — *Mar 2015 - Feb 2020*

Publications

- **Multi-ttach: Techniques to Enhance Multi-material Attachments in Low-cost FDM 3D Printing.** Nahyun Kwon*, Himani Deshpande*, Md Kamrul Hasan, Aryabhat Darnal, Jeeeun Kim. In Proceedings of ACM Symposium on Computational Fabrication (SCF'21)
- **Touch Screen Exploration of Visual Artwork for Blind People.** Dragan Ahmetovic, Nahyun Kwon, Uran Oh, Cristian Bernareggi, Sergio Mascetti. In Proceedings of the Web Conference 2021 (WWW'21)
- **Supporting a Crowd-powered Accessible Online Art Gallery for People with Visual Impairments: A Feasibility Study.** Nahyun Kwon, Yunjung Lee, Uran Oh. Universal Access in the Information Society (2021)
- **3D4ALL: Toward an Inclusive Pipeline to Classify 3D Contents.** Nahyun Kwon, Chen Liang, Jeeeun Kim. In Proceedings of the TExSS'21, Workshop on IUI'21.
- **Supporting Object-level Exploration of Artworks by Touch for People with Visual Impairments.** Nahyun Kwon, Youngji Koh, Uran Oh. In Proceedings of ACM SIGACCESS Conference on Computers and Accessibility (ASSETS'19). Poster Session.

Skills

Python/C/Java, Tensorflow/Keras, HTML/CSS/Javascript, D3.js, Git, Swift, Communication

Experience

- **HCIED (HCI Engineering and Design) Lab, Texas A&M University** — TX, USA
  Ph.D. Student, Advisor: Dr. Jeeeun Kim — *Sep 2020 - Present*
  - **Human-augmented AI to facilitate intelligent & interactive 3D printing troubleshooting**
  - **A human-in-the-loop pipeline for augmented learning** Reflecting various stakeholders' point of view with different backgrounds and perspectives in understanding the 3D content to mitigate personal biases by ensuring transparency and interpretability in the training process of a deep learning model
  - **Low-cost technique to increase the adhesion between different materials in 3D printing** Designed & developed algorithm that understands the geometric relation of polygons and creates interlocking structure , Implemented interactive tool that automatically creates desired structure inside the 3D model. Tech: Python, Flask
- **Alignment Lab, George Mason University** — VA, USA (Remote)
  Research Intern, Advisor: Dr. Ray Hong — *Summer 2021*
  - **AI-powered interactive 3D printing failure diagnosis & solution suggestion system for remote novice users** Trained multiple binary classification models for each 3D printing failure type. Tech: Pytorch
  - **Human-subject study** Designed online survey questionnaires, controlled lab study, and semi-structured interview. Qualitative & quantitative analysis. Tech: Kruskal-Wallis/Chi-square test, Power analysis
  - **Impact** Our system significantly improved remote novices' troubleshooting experience than their previous best practice
- **Human Computer Interaction Lab, Ewha Womans University** — Seoul, Korea
  Undergrad Research Intern, Advisor: Dr. Uran Oh — *Jan 2019 - Aug 2020*
  - **Improving 2D artwork accessibility for people with visual impairments** Collected crowdsourced artwork annotation and implemented VoiceOver-compatible web interface for spacial exploration of 2D artwork. Designed controlled lab study, and semi-structured interview. Tech: mTurk, D3.js
  - **Mobile gesture recognition for people with visual impairments** Implemented custom gestures for various functional zooming of screen on iOS for effective & rigorous exploration of image. Tech: Swift
- **WISHUPON Inc.** — Seoul, Korea
  Data Engineer Intern — *Winter 2018*
  - **Collecting up-to-date data of products in online shopping malls** Developed dynamic scraping modules for commercial data, so significantly reduced the amount of manual work. Tech: Python
  - **Commercial data analysis** Extracting repetitive patterns from data for automated classification of data
  - **Communication** Defined new error types of scraping system for better team communication. Tech: Jira, Bitbucket

Honors and Awards

- ACM CRA-W Grad Cohort, 2022
- CSE Travel Grant, 2021
- Ewha Future Capability Scholarship, Ewha Womans University, 2019
- Dean's List, Hanium ICT Mentoring Competition Award, Ewha Womans University, 2018

Volunteer Experience

- **Student Volunteer. IUI'21, CHI'22** Organized the paper sessions and resolved technical issues in virtual & in-person conference
- **Workshop Coordinator. TxHCI Seminar Series** Coordinated an interdisciplinary seminar across Texas institutions to foster an HCI community by managing a mailing list of subscribers (Spring 2021)

Last Update: 4/28/2022