# Dongwook Yoon

Assistant Professor at the Department of Computer Science
University of British Columbia
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## RESEARCH INTERESTS

My research lies at the intersection of *human-computer interaction (HCI)*, *computer-supported cooperative work (CSCW)*, *computer-mediated communication (CMC)*, and *educational technology*. My primary research focus is to build ***rich collaboration systems*** that offer expressive *multi-modal interactions*, i.e., interactions through multiple communication channels (e.g., speech, gesture, and grasp). My design approach translates natural human interactions into novel combinations of input modalities that serve as building blocks for fluid, rich, and lightweight interfaces. My evaluation approach deploys and evaluates high-fidelity systems in real world contexts (e.g., classrooms), from which we can obtain ecologically valid user data. I plan to pursue my vision for rich collaboration systems by extending my approach to *virtual and augmented reality*, a promising next generation computing platform.

## EDUCATION

**Cornell University** — Ithaca, NY
Ph.D. in Information Science — Aug 2012 – Jul 2017
Area of Study: Human-computer Interaction
Advisors: Professor François Guimbretière

**Seoul National University** — Seoul, Korea
M.S. in Electrical Engineering and Computer Science — Mar 2007 – Feb 2009
Area of Study: Computer Graphics
Advisor: Professor Hyeong-Seok Ko

**Seoul National University** — Seoul, Korea
B.S. in Electrical Engineering — Mar 2003 – Feb 2007
Graduated with honors (cum laude)

## EMPLOYMENTS

**University of British Columbia** — Vancouver, BC, Canada
Assistant Professor at the Department of Computer Science — Aug 2017 – Present

**edX** — Cambridge, MA, U.S.
Research Intern, mentored by Piotr Mitros — May 2015 – Aug 2015
Supporting online peer-discussion using voice and gesture interactions

**Microsoft Research** — Redmond, WA, U.S.
Research Intern, mentored by Ken Hinckley — May 2014 – Aug 2014
Tablet user interfaces with capacitive grasp and inertial motion sensing

**Microsoft Research** — Cambridge, UK
Research Intern, mentored by Nicholas Chen and Abigail Sellen — Sep 2013 – Dec 2013
Multi-modal document annotation user interfaces

**Korea Institute of Science and Technology** — Seoul, Korea
Research Scientist — Mar 2009 – Aug 2012
Multi-touch, AR, and VR technologies and their usability issues

**Flur Company, Xenix Studio** — Seoul, Korea
Software Developer — Nov 2008 – Mar 2009,
Face recognition engine for interactive media art exhibitions at Samsung HQ, — Aug 2010 – Nov 2011
Cross-platform mobile AR framework

## CONFERENCE PAPER PUBLICATIONS

[c.7] Facilitating Complex Referencing of Visual Materials in Asynchronous Discussion Interface
Soon Hau Chua, Toni-Jan Keith Palma Monserrat, **Dongwook Yoon**, Juho Kim, and Shengdong Zhao
CSCW 2018, ACM Conference on Computer-Supported Cooperative Work and Social Computing.
(Full paper, conditionally accepted)

[c.6] TypeTalker: Simplified and Anonymized Multi-Modal Comment Production Using Speech Recognition and Synthesis.
Ian Arawjo, **Dongwook Yoon**, and François Guimbretière.
CSCW 2017, ACM Conference on Computer-Supported Cooperative Work and Social Computing.
(Full paper, 35% acceptance rate)

[c.5] SimpleSpeech: Simplified Audio Production in Asynchronous Voice-Based Discussions.
Venkatesh Sivaraman, **Dongwook Yoon**, and Piotr Mitros.
CHI 2016, ACM Conference on Human Factors in Computing Systems. (Full paper, 23% acceptance rate)

[c.4] RichReview$^{++}$: Deployment of a Collaborative Multi-Modal Annotation System for Instructor Feedback and Peer Discussion.
**Dongwook Yoon**, Nicholas Chen, Bernie Randles, Amy Cheatle, Steven Jackson, Corinna Loeckenhoff, Abigail Sellen, and François Guimbretière.
CSCW 2016, ACM Conference on Computer-Supported Cooperative Work and Social Computing.
(Full paper, 25% acceptance rate)

[c.3] Sensing Tablet Grasp + Micro-mobility for Active Reading.
**Dongwook Yoon**, Ken Hinckley, Hrvoje Benko, François Guimbretière, Pourang Irani, Michel Pahud, and Marcel Gavriliu.
UIST 2015, ACM Symposium on User Interface Software and Technology. (Full paper, 24% acceptance rate)

[c.2] RichReview: A System to Support Discussion of Digital Documents through Speaking, Inking, and Pointing.
**Dongwook Yoon**, Nicholas Chen, François Guimbretière, and Abigail Sellen.
UIST 2014, ACM Symposium on User Interface Software and Technology. (Full paper, 22% acceptance rate)

[c.1] TextTearing: Expanding Whitespace for Digital Ink Annotation.
**Dongwook Yoon**, Nicholas Chen, and François Guimbretière.
UIST 2013, ACM Symposium on User Interface Software and Technology. (Short paper, 20% acceptance rate)

## WORKSHOP PAPERS, POSTERS, AND DEMOS

[p.9] Enriching Online Classroom Communication with Collaborative Multimodal Annotations.
**Dongwook Yoon**, and François Guimbretière.
UIST 2015. (Doctoral symposium).

[p.8] Multimodal Peer Discussion with RichReview on edX.
**Dongwook Yoon**, and Piotr Mitros.
UIST 2015. (Demonstrations).

[p.7] Supporting Face-to-Face Like Communication Modalities for Asynchronous Assignment Feedback in Math Education.
Bernie Randles, **Dongwook Yoon**, Amy Cheatle, Malte Jung, and François Guimbretière.
Learning at Scale 2015. (Extended abstracts)

[p.6] Let me show you what I read: exploring referencing strategies for e-books.
**Dongwook Yoon**, Huaishu Peng, and Bin Xu.
SIGCHI 2013. (Extended abstracts)

[p.5] Touch-Bookmark: a lightweight navigation and bookmarking technique for e-books.
**Dongwook Yoon**, Yong-jun Cho, Kiwon Yeom, and Ji-Hyung Park.
SIGCHI 2011. (Extended abstracts)

[p.4] Mobiature: 3D model manipulation technique for large displays using mobile devices.
**Dongwook Yoon**, Joong Ho Lee, Kiwon Yeom, and Ji-Hyung Park.
ICCE 2011, IEEE International Conference On Consumer Electronics. (Short paper)

[p.3] Wave Touch: Educational Game on Interactive Tabletop with Water Simulation.
JoongHo Lee, Won Moon, Kiwon Yeom, **Dongwook Yoon**, Dong-young Kim, JungHyun Han and Ji-Hyung Park.
ICEC 2010, IFIP International Conference on Entertainment Computing. (Short paper)

[p.2] Example-Driven Landmarking of Human Body Scans.
**Dongwook Yoon**, Nambin Heo, and Hyeong-seok Ko.
ITAA 2009, International Textile and Apparel Association Annual Conference. (Short paper)

[p.1] Population-based Body Generation.
Nambin Heo, **Dongwook Yoon**, and Hyeong-seok Ko.
ITAA 2009, International Textile and Apparel Association Annual Conference. (Short paper)

## HONORS AND SCHOLARSHIP

**The Kwanjeong Educational Foundation Scholarship.** Aug 2012 – Present
To cover tuition and living expenses for the Ph.D. study. ($30k/year for 5 years)

**ACM UIST Doctoral Symposium Travel Grant.** Nov 2015
To cover travel expenses for the conference visiting.

**Outstanding Teaching Assistant Award.** May 2014
Cornell University, CS1110: Introduction to Computing Using Python.

**Outstanding Teaching Assistant Award** May 2013
Cornell University, CS1110: Introduction to Computing Using Python.

**Patent Fair, Excellence Award. (2nd Place)** Aug 2011
KIST, Gestural UI for mixed-reality e-books using smartphones as tangible controllers.

**Smartphone App Contest Award. (2nd Place)** Jun 2010
Sejong Art Center, Social commerce system for an arts center 'Mobile & Social Sejong'.

**Electronics Fair Award. (2nd Place)** Nov 2008
Seoul National University, Body generation techniques for digital fashion software

**The National Science & Technology Scholarship.** Mar 2003 – Feb 2007
Korea Research Foundation, Tuition and living expenses covered for B.S. studies.

## TEACHING

CS1110: Introduction to Computing Using Python, Cornell University. Fall 2014
TA, Instructed by Walker White.

CS1110: Introduction to Computing Using Python, Cornell University. Spring 2014
**Received the Outstanding TA Award from the CS department.**
Head TA managing +400 students class, Instructed by Lillian Lee and Steve Marschner.

CS1110: Introduction to Computing Using Python, Cornell University. Spring 2013
**Received the Outstanding TA Award from the CS department.**
TA, Instructed by Lillian Lee and Steve Marschner.

## RESEARCH MENTORING

**Venkatesh Sivaraman, RSI Intern at MIT.** Jul 2015 – Aug 2015
SimpleSpeech: Simplified Audio Production in Asynchronous Voice-Based Discussions.
Co-mentoring with Piotr Mitros.

**Ian Arawjo, Ph.D. student at Cornell University.** Aug 2015 – Present
TypeTalker: Simplified and Anonymized Multi-Modal Comment Production Using Speech Recognition and Synthesis.
Co-mentoring with François Guimbretière.

**Soon Hau Chua, Ph.D. student at National University of Singapore.** Oct 2015 – Present
User interfaces for supporting online discussion.
Co-mentoring with Shengdong Zhao.

## PROFESSIONAL SERVICE

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|---|---|
| Reviewing | CHI Paper Proceedings (2015 – 2017), Extended Abstracts (2013).<br>CSCW Paper Proceedings (2014 – 2017).<br>UIST Paper Proceedings (2014 – 2017). |
| University Service | Information Science Graduate Student Association at Cornell.<br>Hiring Representative (2015 – 2016), Vice President (2014 – 2015). |
| | Korean Graduate Student Association at Cornell.<br>Vice President (2016 – 2017), IT Management Chair (2013 – 2016). |

## PATENTS

Absolute image orientation displacement monitoring and manipulation apparatus (US8878875), Nov 2014.
Ji-Hyung Park, **Dongwook Yoon**, Joong Ho Lee, Ki-Won Yeom.

Gestural annotations (14/192,936), Feb 2014.
Nicholas Chen, Abigail Sellen, **Dongwook Yoon**.

Method for population-driven identification of body landmarks (US8406497), Mar 2013.
**Dongwook Yoon**, Hyeong-Seok Ko.

Display apparatus and contents display method (14/351,797), Oct 2012.
Ji Hyung Park, **Dongwook Yoon**, Joong Ho Lee

## SKILLS

HCI Research Methodologies: Iterative Design, Quantitative Methods, Qualitative Methods.

Web Technology: HTML, CSS, jQuery, Node.js, Django.

Computer Graphics and Vision: OpenGL, DirectX, OpenCV.

Programming Languages: C, C++, Python, JavaScript, Java, VHDL.

Tools: R, SPSS, Matlab, NVivo.

## REFERENCES


**François Guimbretière**
Associate Professor, Cornell University
francois@cs.cornell.edu

**Susan Fussell**
Professor, Cornell University
sfussell@cornell.edu

**Ken Hinckley**
Principal Researcher, Microsoft Research
kenh@microsoft.com

**Abigail Sellen**
Principal Researcher, Microsoft Research
asellen@microsoft.com

**Piotr Mitros**
Chief Scientist, edX
pmitros@edx.org