Ken Nakagaki

Interaction Designer, HCI Researcher

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RESEARCHER PROFILE

- I develop computer interfaces and devices which **seamlessly combine dynamism of digital information into tangible physical objects** such as tools and materials for novel **embodied experiences**.

RESEARCH AREAS

Human Computer Interaction, Tangible Interfaces, Shape Changing Interfaces, Haptic Interfaces, Interactive Material, Interactive Hand Tools, Human Robot Interaction and Entertainment Media.

WORK EXPERIENCE

RESEARCH ASSISTANT: MIT MEDIA LAB *2014 - Present*

- Conduct research to develop novel shape changing interface and interaction technique using rapid prototyping (both software and hardware engineering) and interaction design skills.
- Present at top HCI Conferences (ACM CHI, UIST, TEI) based on publications (full papers), generating significant media exposure in print and video.
- Collaborate with researchers/students from different backgrounds to develop interactive systems.
- Lead and manage projects for research group to ensure successful group and project outcome and timely submissions for publications in major journals.

RESEARCH ASSOCIATE (INTERNSHIP): DISNEY RESEARCH *May - August 2017*

- Conduct research on pneumatically actuated jacket for full-body haptic experiences and published in ACM CHI.

EDUCATION

MIT MEDIA LAB: CAMBRIDGE, USA

- Philosophy of Doctor [Ph.D] Candidate in Media Arts and Sciences
  June 2016 - June 2021 (expected completion date)
- Master of Science [M.S.] in Media Arts and Sciences *September 2014 - June 2016*
  Tangible Media Group (Advisor: Hiroshi Ishii)
  Research Areas: HCI, Shape Changing Interfaces, Tangible Interfaces, Modular Robotics

KEIO UNIVERSITY SFC: KANAGAWA, JAPAN

- Master of Media and Governance [M.M.G] *April 2013 - September 2014*
- Bachelor of Arts [B.A.] in Policy Management *April 2009 - March 2013*
  Yasuaki Kakehi Laboratory (Advisor: Yasuaki Kakehi)
  Research Areas: Interaction Design, HCI, Smart Hand Tools, Hardware Engineering

SKILLS

PROGRAMMING - C++ (openFrameworks), Processing, HTML/PHP, Python, Latex
ELECTRONICS - Arduino, Eagle
FABRICATION - Rhinoceros, SOLIDWORKS, 3D Printing, Laser Cutting
DESIGN & VIDEO - Adobe Illustrator, Photoshop, InDesign, Premiere, After Effect, Final Cut Pro X
LANGUAGE - English (fluent), Japanese (native)

PROFESSIONAL AFFILIATIONS & ACTIVITIES

REVIEWER

- ACM CHI 2016, 2017, 2018, 2019, 2020
- ACM UIST 2016, 2017, 2018, 2019, 2020

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- ACM TEI 2017, 2018, 2019, 2020, 2021
- ACM DIS 2017, 2019, 2020
- Augmented Human International Conference (AH) 2016, 2017
- SIGGRAPH Asia 2016, 2018, 2019
- EUROHAPTICS 2016, IROS2017, DESFORM2017, IEEE Pervasive Computing Journal, WHC2019

SELECT PUBLICATIONS

1) **Ken Nakagaki,** Joanne Leong, Jordan L Tappa, Joao Wilbert, and Hiroshi Ishii. “HERMITS: Dynamically Reconfiguring the Interactivity of Self-propelled TUIs with Mechanical Shell Add-ons,” In ACM UIST’20. [to appear]

2) Hila Mor, Tianyu Yu, **Ken Nakagaki,** Benjamin Harvery Miller, Yichen Jia, and Hiroshi Ishii:“Venous Materials: Towards Interactive Fluidic Mechanisms,” In ACM CHI’20 (2020.4).

3) **Ken Nakagaki,** Yingda (Roger) Liu, Chloe Nelson-Arzuaga, and Hiroshi Ishii. “TRANS-DOCK: Expanding the Interactivity of Pin-based Shape Displays by Docking Mechanical Transducers,” In ACM TEI’20 (2020.2).

4) Takatoshi Yoshida, Xiaoyan Shen, Tal Achituv, Koichi Yoshino, **Ken Nakagaki**, and Hiroshi Ishii. "SCALE: Enhancing Force-based Interaction by Processing Load Data from Load Sensitive Modules." In ACM UIST’19 (2019.10).

5) **Ken Nakagaki,** Daniel Fitzgerald, Zhiyao (John) Ma, Luke Vink, Daniel Levine and Hiroshi Ishii:“inFORCE: Bi-directional `Force’ Shape Display For Haptic Interaction,” In ACM TEI’19 (2019.3). [Honorable Mention Award]

6) Alexandra Delazio, **Ken Nakagaki,** Roberta L. Klatzky, Scott E. Hudson, Jill Fain Lehman and Alanson P. Sample: “Force Jacket: Pneumatically-Actuated Jacket for Embodied Haptic Experiences,” In ACM CHI’18 (2018.4)

7) **Ken Nakagaki**, Artem Dementyev, Sean Follmer, Joseph A. Paradiso, and Hiroshi Ishii. "ChainFORM: A Linear Integrated Modular Hardware System for Shape Changing Interfaces." In *UIST’16*, ACM, 2016.

8) **Ken Nakagaki***, Luke Vink*, Jared Counts, Daniel Windham, Daniel Leithinger, Sean Follmer, and Hiroshi Ishii. "Materiable: Rendering Dynamic Material Properties in Response to Direct Physical Touch with Shape Changing Interfaces." In ACM *CHI’16*, 2016. (*Contributed Equally) [Best Paper Honorable Mention Award]

9) **Ken Nakagaki**, Sean Follmer, and Hiroshi Ishii. "LineFORM: Actuated Curve Interfaces for Display, Interaction, and Constraint." In *UIST’15*, ACM, 2015.

10) Luke Vink, Viirj Kan, **Ken Nakagaki**, Daniel Leithinger, Sean Follmer, Philipp Schoessler, Amit Zoran, and Hiroshi Ishii. "TRANSFORM as Adaptive and Dynamic Furniture." In ACM *CHI’15 EA*., 2015. [Golden Mouse Award]

11) **Ken Nakagaki**, Keina Konno, Shuntaro Tashiro, Ayaka Ikezawa, Yusaku Kimura, Masaru Jingi, and Yasuaki Kakehi. "Petanko Roller: A VR System with a Rolling-Pin Haptic Interface for Entertainment." In *Advances in Computer Entertainment*, Springer International Publishing, 2013.

SELECT DESIGN / ART AWARDS AND RECOGNITIONS

1) YouFab Global Creative Award 2017, **Finalist** (ChainFORM, 2018)

2) Innovation by Design Awards 2016, **Honorable Mention Award in Students Category** (LineFORM, 2016)

3) **Golden A’ Design Award** in Interaction Design Category (LineFORM, 2016)

4) James Dyson Award - **Third Place of National Stage** and **Top 20 of International Stage** (COMP*PASS, 2014)

5) IPSJ Yamashita SIG Research Award (COMP*PASS, 2014)

6) 16th Japan Media Arts Festival, Entertainment Division - **Jury Selections** (Petanko Roller, 2012)

7) The 19th International collegiate Virtual Reality Contest(IVRC2011) - **Grand Prix, DCExpo/ConTEX Award, Laval Virtual Award, and Popular Vote Award** (Petanko Roller, 2011)

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