Kei Asano

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RESEARCH INTEREST

My research interest is in the innovative integration of Sensing Technology and Human-Computer Interaction, particularly in translating human motion into interactive technological applications. My past work includes developing a head-mounted display designed for use while lying down and a hand tracking glove that functions as a VR controller. I aim to further explore how capturing and interpreting human actions can lead to transformative experiences.

EDUCATION

Columbia University, New York,   September 2021 - Current
School of Engineering and Applied Science

B.S. in Applied Math, Minor in Computer Science. Expected graduation May 2025.
- Dean's List for all semesters
- GPA: 3.87, Major GPA: 4.00

Shibuya Junior and Senior Highschool, Japan   April 2015 - March 2021
- High School Degree
- Excellence Award for 3 years.

SCHOLARSHIPS

Scholar, Masayoshi Son Foundation, September 2019 - Current
- Full tuition scholarship for 5 years, up to 5 million yen research grant per year. (Approximately 40,000 USD)

Scholar, Yanai Tadashi Foundation, September 2021 - Current
- Full tuition scholarship for undergraduate school.

PATENT

Head mounted display support device and head mounted display system, June 2022
- Asano, Kei and Sakoda, Yamato. 2022. ヘッドマウントディスプレイ支持装置及びヘッドマウントディスプレイシステム. 特許7039079, filed June 2022, and issued January 2023.

RESEARCH EXPERIENCE

Rekimoto Lab, University of Tokyo   September 2022 - January 2023
- Worked with Naoki Kimura, a PhD student at the University of Tokyo, on a project to develop a lip reading system for virtual reality, under the supervision of Professor Jun Rekimoto.
- The system works by attaching a camera on a VR headset, and using a deep learning model to recognize the lip movements of the user to translate lip movements into speech. Users could then use the system to communicate with others in VR, without speaking out.

CGUI Lab, Columbia University   September 2022 - Current
- Collaborating with Professor Steven Feiner on a project focused on retargeting human finger movements to achieve natural grasping motions.

Future Interface Group, Carnegie Mellon University December 2023 - January 2024

- Worked on a project, advised by Professor Chris Harrison and Daehwa Kim. The content of the project will be updated.

<table>
<tr><td>WORK
EXPERIENCE</td><td>Co-founder, Diver-X,</td><td>April 2021 - Current</td></tr>
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Co-founder, Diver-X, April 2021 - Current
- Funded by DeepCore, a Japanese venture capital

- Successful Kickstarter project for "HalfDive," collecting 174K USD from 248 backers.

- Successful Kickstarter project for "ContactGlove," collecting 298K USD from 488 backers.

- Exhibited at several events, including Tokyo Game Show 2021, CES 2022.

- 'Contact Glove,' our first product received CES 2022 Innovation Award.

- Working with several companies and universities, including Sony, Kyoto University, National Institute of Advanced Industrial Science and Technology.

Alcooler Project with All Nippon Airlines, January 2020
- Developed app to test blood alcohol level in pilots.

- Distributed to 20k crew members in ANA.

AWARDS

- **Teens Apps Contest 2021, 1st place, Ministry of International Affairs and Communications Award**
Developed a mobile puzzle game, received 1st place over 2000 applicants. Highest average section scores in the past 8 years (93.2/100).

- **CES 2022 Innovation Award**
The company that I founded, received the CES 2022 Innovation Award for "Contact Glove," a haptic glove controller used in Virtual Reality.

- **22nd in all 1047 participants, Japanese Olympiad in Informatics 2018/2019**
Highest score in B rank range (22nd) in the final round of the Japanese Olympiad in Informatics.

- **Super Creator Award at MITOU 2021**
MITOU program is the most prestigious youth programming incubator program in Japan, organized by the Ministry of Economy, Trade and Industry in Japan. I received a research fund of 2.3 million yen (Approximately 17.5K dollars) for our project, and also received the Super Creator Award, which is a prestigious award given to the most promising young talents.

- **Gold Award, Unity Inter-High**
Largest national student game design competition in Japan, organized by Unity Technologies. I received the Gold Award for my puzzle game "Abecobe." The algorithm used to procedually generate the puzzles was highly praised by the judges.

- **Committee Chairperson Award, 82nd Information Processing Society National Student Research Convention**
Presented a poster explaining a novel algorithm for procedually generating puzzle maps for my puzzle game. Organized by the Information Processing Society of Japan.

- **Regional Award, Japan Junior Mathematical Olympiad 2016 and 2017**
Received the Regional Award for the Japan Junior Mathematical Olympiad in 2016 and 2017, the award given to the top 10% of participants.

- **Super Creator Award at MITOU Junior 2019**

MITOU junior program is a program to develop IT talents for students, and the difference to the MITOU program is that it is for students under 18 years old. I received a research fund of 0.5 million yen for our project, and also received the Super Creator Award, which is a prestigious award given to the most promising young talents.

- **Finalist, SONY U24 Co-Challenge 2019**
  Designed an electronic bicycle that can be controlled by a smartphone, and received the finalist award. One of the 12 finalists out of 332 applicants (in teams).

PUBLICATIONS

1. Kei Asano, Naoki Kimura, Jun Rekimoto, "HMDspeller: Fast and Hands-free Text Entry System for Head Mount Displays using Silent Spelling Recognition," in *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems*, Hamburg, Germany, Apr 2023.

2. Shutaro Aoyama, Kei Asano, "Shadow Play using Ultrasound Levitated Props," in *Adjunct Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology*, Oregon, USA, Oct 2022.

PRESS & MEDIA (SELECTED COVERAGE)

1. Road to VR (2022). "Startup Behind Ambitious HalfDive Headset Launches New Kickstarter for VR Haptic Gloves." December 20.

2. Cas and Chary XR (2021). "Half Dive: The Closest To Nerve Gear In Real Life You Can Buy SOON?" September 30.

3. Display Daily (2022). "The HalfDive VR Headset is Optimized for Use in Bed – But Goes to Sleep." January 4.

4. Geeky Gadgets (2021). "HalfDive VR headset designed to be worn lying down." December 23.

5. VRelity (2021). "The First FullDive Sword Art Online VR Headset: The Halfdive." December 18.

6. TechCrunch (2023). "It's like the Power Glove, but for VR." January 3.

7. MIXED Reality News (2022). "New haptic gloves aim to make controllers obsolete." December 22.

8. Billboard (2023). "CES 2023 Best Products: Billboard's Favorite Innovations." January 27.

RELEVANT SKILLS

Languages: English(fluent), Japanese(native)

Programming / Development : Work experiences (2 years): {C++, C#(Unity), Arduino, OpenVR, Rust, Tauri, ML, ESP-IDF}, Personal projects: {Python, Dart}