

# Gakuto Sasabe

☎ +81 80-6920-2645 | ✉ [gakuto0122@gmail.com](mailto:gakuto0122@gmail.com) | 🏠 <https://gakutosasabe.github.io/pages/> | 📄 [github.com/gakutosasabe](https://github.com/gakutosasabe) | 🐦 @gakuto66

## Personal Profile

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Gakuto Sasabe was born in Japan. He received his B.E. degree in Electrical and Electronic Engineering from the Tokyo University of Agriculture and Technology, and his M.E. degree in Information Technology from the Tokyo Institute of Technology, Tokyo, Japan, in 2018, under the supervision of Prof. Yoshihiro Miyake. After working on the development of an automated dish-serving system as a Robotics Technician, he worked as a Semiconductor Equipment Software Engineer developing semiconductor manufacturing equipment. Currently, he is a freelance engineer working as a backend engineer for a car rental service. He is interested in augmenting human capabilities using technologies such as AR, VR, and electrical engineering, as well as insights from cognitive psychology and human-computer interaction.

## Education

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### School of Computing, Tokyo Institute of Technology

MASTER OF ENGINEERING.

Tokyo, Japan

Apr 2016 - Mar 2018

- Supervisor: Prof. Yoshihiro Miyake
- Thesis: Increasing walking stride and speed by synchronization with avatar walking using mixed reality

### Department of Electrical and Electronic Engineering, Tokyo University of Agriculture and Technology

BACHELOR OF ENGINEERING.

Tokyo, Japan

Apr 2011 - May 2016

- Supervisor: Prof. Hitoshi Kitazawa
- Thesis: Research on analysis methods for temporal signal changes in moving object detection.

## Work Experience

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### Backend Engineer

BOXIV Inc.

Tokyo, Japan

Jun 2024 - Present

- Contributed to the development of a service for renting Tesla cars, which was built using Google Cloud Platform and Swift.
- Primarily responsible for backend development, including designing and implementing Cloud Function APIs for the Swift application.
- **Skills:** Typescript, Google Cloud Platform, Prisma, Vue.js, SQL

### Semiconductor Equipment Software Engineer

Panasonic Connect Co., Ltd.

Osaka, Japan

Sep 2019 - Dec 2023

- Designed and developed equipment UI using VB.NET, WPF and AdobeXD
- Created and implemented control programs with TwinCAT
- Improved development efficiency using Jira, Markdown, and Subversion
- Led a software team in Vietnam, driving software refactoring efforts
- **Skills:** VB.NET, WPF, TwinCAT, UML, Object oriented design, UI design, Subversion, AdobeXD, Git, Jira, Markdown, Teamwork, Time Management, Communication, Presentation skills.

### Embeded Software Engineer

Panasonic Connect Co., Ltd.

Osaka, Japan

Apr 2018 - Aug 2019

- Developed an automated dish-serving system for a Chinese restaurant.
- Programming industrial robots for Mitsubishi Heavy Industries.
- **Skills:** PLC programming, Robot programming
- **Soft Skills:** Teamwork, Time Management, Communication, Presentation skills.

# University Projects

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## Increasing walking stride and speed by synchronization with avatar walking using mixed reality

Tokyo, Japan

School of Computing, Tokyo Institute of Technology

Apr 2016 - Apr 2018

- Developed a system to present a 3D avatar synchronized with the user's walking rhythm using HoloLens.
- Unlike previous studies using auditory or timing cues, we presented the actual gait.
- Provided two avatar types: normal walking and exaggerated arm and leg movements.
- Evaluated changes in walking speed and stride length while users viewed each avatar.
- Results showed significant increases in walking speed and stride length for users viewing the exaggerated movement avatar.
- **Technical Skills:** C#, Unity, Statistics, R, Psychological experiment design
- **Soft Skills:** Time Management, Teamwork, Presentation skills, Report writing.

## Research on analysis methods for temporal signal changes in moving object detection.

Tokyo, Japan

Tokyo University of Agriculture and Technology

Apr 2010 - Mar 2011

- Conducted temperature data clustering using DTW, RealAdaboost, and SVM for time series machine learning.
- Detected motion based on luminance time series data from video at specific coordinates.
- Created two waveforms: one connecting monotonically increasing to decreasing data, and the other from decreasing to increasing data.
- The segmented waveform width enabled more detailed motion detection compared to single Gaussian distribution methods.
- **Technical Skills:** C++, Machine learning, Image recognition, Latex
- **Soft Skills:** Time Management, Teamwork, Presentation skills, Report writing.

## Skills

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<b>Programming</b>	Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), R, CSharp, Unity, OpenCV, Javascript, Arduino, PLC, TwinCAT
<b>Miscellaneous</b>	Linux, 囲碁, Adobe XD, Figma, Microsoft Office, Git, Jira.
<b>Soft Skills</b>	Time Management, Teamwork, Problem-solving, Documentation, Presentation, UI design.
<b>Qualification</b>	Fundamental Information Technology Engineer Examination, Applied Information Technology Engineer Examination

## Achievements

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2019	<b>Sponser Award</b> , GUGEN 2019(Hardware Contest)	Japan
2018	<b>CNS Golden Award</b> , CNS Golden Award	Japan

## Publications

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### JOURNAL ARTICLES

Spatiotemporal Gait Guidance Using Audiovisual Cues of Synchronized Walking Avatar in Augmented Reality

Dane A. L. Miller, Taiki Ogata, Gakuto Sasabe, Liang Shan, Nozomi Tsumura, Yoshihiro Miyake

IEEE Access 10 (2022) pp. 90498–90506, 2022

### CONFERENCE PRESENTATIONS

Development of a device that automatically adjusts the gain of specific keywords that appear in speech.

Shunichi Amano Gakuto Sasabe

23th Society of Instrument and Control Engineers System Integration Division Lecture (SI 2022), 2022, Chiba, Japan

Walking assist system utilizing the mirroring effect of visual information by mixed reality

Yoshihiro Miyake Gakuto Sasabe

30th SICE Symposium on Decentralized Autonomous Systems, 2018, Aichi, Japan

## Interests

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<b>Reserch</b>	Human Augmentation, Human Computer Interaction ,cognitive phycology,ghost engineering, Embodied cognition, AR/VR/MR
<b>Maker</b>	On weekends, he gathers with company volunteers and engages in maker activities, including the creation of body augmentation devices. They also participate in Makers Faire twice a year.
<b>Technical Writing</b>	I write descriptive blogs about my creation and reserch on my GitHub
<b>Reading Books</b>	I like to read about body extension research, philosophy and art.

# Languages

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<b>Japanese</b>	Professional proficiency
<b>English</b>	Fluent
<b>French</b>	Beginner

References available upon request.