

# NAOYA MURAMATSU

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1-2 Kasuga, Tsukuba, Ibaraki Pref., Japan

## EDUCATION

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### University of Tsukuba

April 2018 – Present

Master of Information Science

Department of Library, Information and Media Studies, Graduate School of Library, Information and Media Studies

Adviser: Yoichi Ochiai

### University of Tsukuba

April 2016 – March 2018

Bachelor of Library and Information Science

College of Knowledge and Library Sciences

Adviser: Yoichi Ochiai

### National Institute of Technology, Nagano College

April 2011 – March 2016

Foundation Degree

Department of Electrical and Electronic Engineering

Adviser: Takashi Miyazaki

## RESEARCH EXPERIENCE

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### University of Tsukuba

April 2018 – Present

*Master Research*

- Developed the robot control system, able to walk even if a few legs are broken using hierarchy Q-learning.

### University of Tsukuba

April 2016 – March 2018

*Undergraduate Research*

- Analyzed reviews of EC site to find out points of variation.
- Developed Sonoliards optimizing the direction of a parametric speaker with a ray tracing algorithm.
- Developed DeepHolo that recognizes 3D objects using a deep neural network and computer-generated holography for convert 3D data to 2D data with depth information.
- Developed DeepWear, a method using deep convolutional generative adversarial networks (DCGANs) for clothes design.

### National Institute of Technology, Nagano College

April 2015 – March 2016

*Undergraduate Research*

- Developed the noise filter that greatly suppresses the influence of radio noise in the indoor position information system using Link Quality Indication (LQI) value of radio waves.

## TECHNICAL STRENGTHS

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### Programming Languages

Python(most fluent), C, C++, Verilog, Shell Script, Ruby, JavaScript, SQL

### Machine Learning Libraries

Tensorflow, Keras, Chainer, Scikit-learn, PyTorch

### Software

Git, Docker, PyBullet, Processing, Autodesk Fusion360

### OS

MacOS, Ubuntu, Windows, FreeNAS, CentOS

### Hardware

Arduino, Mbed, PhantomX AX Metal Hexapod

## PUBLICATIONS

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### INTERNATIONAL CONFERENCES (REFEREED)

- **Naoya Muramatsu**, Ooi Chun Wei, Takashi Miyazaki. 2017. Development of High Performance Filter for Indoor Positioning System. In *The 5th IIAE International Conference on Intelligent Systems and Image Processing 2017(ICISIP 2017)*.
- Natsumi Kato\*, Hiroyuki Osone\*, Daitetsu Sato, **Naoya Muramatsu**, and Yoichi Ochiai. 2018. Deep-Wear: a Case Study of Collaborative Design between Human and Artificial Intelligence. In *Proceedings of the Twelfth International Conference on Tangible, Embedded, and Embodied Interaction (TEI ' 18)*. ACM, New York, NY, USA, 529-536. DOI: <https://doi.org/10.1145/3173225.3173302> (\* Joint first authorship.)
- Chun Wei Ooi, **Naoya Muramatsu**, and Yoichi Ochiai. 2018. Eholo glass: Electroholography glass. A lensless approach to holographic augmented reality near-eye display. In *SIGGRAPH Asia 2018 Technical Briefs (SA ' 18)*, December 4- 7, 2018, Tokyo, Japan. ACM, New York, NY, USA, 4 pages. DOI: <https://doi.org/10.1145/3283254.3283288>

### INTERNATIONAL Posters and Workshops (REFEREED)

- Natsumi Kato, Hiroyuki Osone, Daitetsu Sato, **Naoya Muramatsu**, and Yoichi Ochiai. 2017. Crowd Sourcing Clothes Design Directed by Adversarial Neural Networks. In *NIPS 2017 Workshop (NIPS ' 17)*.
- **Naoya Muramatsu**, Kazuki Ohshima, Ryota Kawamura, Ooi Chun Wei, Yuta Sato, and Yoichi Ochiai. 2017. Sonoliards: Rendering Audible Sound Spots by Reflecting the Ultrasound Beams. In *Adjunct Publication of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST ' 17)*. ACM, New York, NY, USA, 57-59. DOI: <https://doi.org/10.1145/3131785.3131807>
- **Naoya Muramatsu**, Chun Wei Ooi, Yuta Itoh, and Yoichi Ochiai. 2017. DeepHolo: Recognizing 3D Objects using a Binary-weighted Computer-Generated Hologram. In *SIGGRAPH Asia 2017 Posters (SA 2017)*, November 27 - 30, 2017, Bangkok, Thailand. ACM, New York, NY, USA, 2 pages. DOI: <https://doi.org/10.1145/3145690.3145725>
- Mose Sakashita, Yuta Sato, Ayaka Ebisu, Keisuke Kawahara, Satoshi Hashizume, **Naoya Muramatsu**, Yoichi Ochiai. 2017. Haptic Marionette: Wrist Control Technology Combined with Electrical Muscle Stimulation and Hanger Reflex. In *SIGGRAPH Asia 2017 Posters (SA 2017)*. ACM, New York, NY, USA, Article 33, 2 pages. DOI: <https://doi.org/10.1145/3145690.3145743>

### DOMESTIC CONFERENCES (NOT REFEREED)

- **Naoya Muramatsu**, Tetsuji Satoh, Takayasu Fushimi. 2017. Product Attribute Extraction Method Based on Transition Pattern of Review Point of View. In *Data Engineering and Information Management 2017 (DEIM 2017)*. (in Japanese)

## WORK EXPERIENCE

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### Fixstars Corporation

August 2014 – September 2014

*Software Engineer Intern*

- Worked on software optimization for the microcomputer of cars.

### Fixstars Corporation

August 2016 – December 2016

*Software Engineer Intern*

- Worked on development of semantic segmentation system for self-driving cars.

### Pixie Dust Technologies, Inc.

August 2017 – April 2019

*Software Engineer*

- Worked on development of management systems and web applications.

**Information-technology Promotion Agency, Japan. Exploratory Software Project (MITOU)** June 2018 – March 2019

*Creator*

- Developed the robot control system, able to walk even if a few legs are broken using hierarchy Q-learning.
- 2,304,000 JPY / nine months.

**Landscape Co.,Ltd.**

January 2020 – Present

*Software Engineer*

- Worked on development of some systems with Machine Learning techniques.

## AWARDS

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**2018** MITOU Projects, **Super Creator**

This award were given 16 creators from 27 people adopted from 300+ applications.

**2018** University of Tsukuba, **President's Award for Students**

**2017** DEIM 2017, **Student Presentation Award.**

**2015** RoboCupJunior Soccer 2015 in Hokushinetsu Block, **Prize: 3rd**

## LINKS

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**Digital Nature Group**

<https://digitalnature.slis.tsukuba.ac.jp/>

**GitHub: DenDen047**

<https://github.com/DenDen047>