

NAOYA MURAMATSU

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Yashio, Saitama Pref., Japan

EDUCATION

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: Tetsuji Satoh

Subadviser: Yu Hai-Tao

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

University of Tsukuba

April 2018 – Present

Master Research

- Proposed the method of applying spiking neural networks for event-based cameras.

University of Cape Town

July 2020

Research Internship

- Estimated the motion of a real cheetah from multi-cameras with trajectory optimization (Supervisor: Dr. Amir Patel).

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

Programming Languages	Python(most fluent), C, C++, Verilog, Shell Script, Ruby, JavaScript, SQL
Machine Learning Libraries	Tensorflow, Keras, PyTorch, Scikit-learn, Chainer
Software	Git, Docker, PyBullet, Processing, Autodesk Fusion360
OS	MacOS, Ubuntu, Windows, FreeNAS, CentOS
Hardware	Arduino, Mbed, PhantomX AX Metal Hexapod

PUBLICATIONS

INTERNATIONAL CONFERENCES (REFEREED)

- Liam Clark, **Naoya Muramatsu**, Daniel Joska, Ricky Jericevich, Fred Nicolls, Alexander Mathis, Mackenzie Mathis, Amir Patel. 2021. AcinoNet: 3D Markerless Motion Tracking of Cheetahs in the Wild. In *International Conference on Robotics and Automation (ICRA 2021)*. IEEE, Xi'an, China.
- 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>
- 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.)
- **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)*.

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**, Hai-Tao Yu. 2021. Combining Spiking Neural Network and Artificial Neural Network for Enhanced Image Classification. In *Data Engineering and Information Management 2021 (DEIM 2021)*.
- **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

Landscape Co.,Ltd.

January 2020 – Present

Outside CTO

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

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.

Pixie Dust Technologies, Inc.

August 2017 – April 2019

Software Engineer

- Worked on development of management systems and web applications.

Fixstars Corporation

August 2016 – December 2016

Software Engineer Intern

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

Fixstars Corporation

August 2014 – September 2014

Software Engineer Intern

- Worked on software optimization for the microcomputer of cars.

AWARDS

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

Digital Nature Group

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

GitHub: DenDen047

<https://github.com/DenDen047>