

# NAOYA MURAMATSU

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sh.mn.nat@gmail.com

## EDUCATION

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### University of Cape Town

April 2021 – Present

*PhD student in Electrical Engineering*

- On the Neuromechanics of the Cheetah.
- Adviser: Amir Patel

### University of Tsukuba

April 2018 – March 2021

*MSc in Information Science*

- Dissertation title: “*SNN Meets ANN: Combining Spiking Neural Network (SNN) and Artificial Neural Network (ANN) for Image Classification*”
- Adviser: Tetsuji Satoh
- Subadviser: Hai-Tao Yu

### University of Tsukuba

April 2016 – March 2018

*BSc in Library and Information Science*

- Dissertation title: “*Deep Learning in Reciprocal Lattice Space*”
- Adviser: Yoichi Ochiai

### National Institute of Technology, Nagano College

April 2015 – March 2016

*Foundation Degree*

- Dissertation title: “*Indoor location acquisition using a power-saving wireless network*” (省電力無線ネットワークを用いた屋内位置情報取得)
- Adviser: Takashi Miyazaki

## INDUSTRIAL EXPERIENCE

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### Good Answers, Inc.

February 2021 – Present

*Fellow*

- Developing the motor control algorithm for electric scooters.

### Landscape Co.,Ltd.

January 2020 – Present

*Outside CTO*

- Working on developing systems with Machine Learning techniques, such as optical character recognition and image recognition.

### Information-technology Promotion Agency, Japan. Exploratory Software Project (MI-TOU)

June 2018 – March 2019

*Creator*

- Developed the robot control system, walking even with broken legs using hierarchy Q-learning.
- **2,304,000 JPY / nine months.**

### Pixie Dust Technologies, Inc.

August 2017 – April 2019

*Software Engineer*

- Worked on the development of management systems and web applications.

**Fixstars Corporation**  
*Software Engineer Intern*

August 2016 – December 2016

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

**Fixstars Corporation**  
*Software Engineer Intern*

August 2014 – September 2014

- Worked on software optimisation for the microcomputer of cars.

## PUBLICATIONS

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### INTERNATIONAL CONFERENCES (REFEREED)

- **Naoya Muramatsu\***, Zico da Silva\*, Daniel Joska, Fred Nicolls, Amir Patel. 2022. Improving 3D Markerless Pose Estimation of Animals in the Wild using Low-Cost Cameras. In *International Conference on Intelligent Robots and Systems (IROS 2022)*. IEEE, Kyoto, Japan. (\* co-first authors) (under review)
- Amaan Vally, Daniel Joska, **Naoya Muramatsu**, Paul Amayo, Amir Patel. 2022. 3D Markerless Motion Capture of Animals in the Wild using Autonomous Tracking Cameras. In *International Conference on Intelligent Robots and Systems (IROS 2022)*. IEEE, Kyoto, Japan. (under review)
- Daniel Joska, Liam Clark, **Naoya Muramatsu**, Ricky Jericevich, Fred Nicolls, Alexander Mathis, Mackenzie Mathis, Amir Patel. 2021. AcinoSet: A 3D Pose Estimation Dataset and Baseline Models for 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. DeepWear: 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> (\* co-first authors)
- **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)

## AWARDS

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<b>2022</b>	Incoming International Student Scholarship at University of Cape Town (35,000 ZAR)
<b>2022</b>	Electrical Engineering P/G Scholarship at University of Cape Town (20,000 ZAR)
<b>2019</b>	<b>Super Creator</b> at MITOU Projects (This award were given 16 creators from 27 people adopted from 300+ applications)
<b>2018</b>	MITOU Projects (2,304,000 JPY)
<b>2018</b>	<b>President's Award for Students</b> at University of Tsukuba
<b>2017</b>	<b>Student Presentation Award</b> at DEIM 2017
<b>2015</b>	<b>Third Prize</b> at RoboCupJunior Soccer 2015 (Hokushinetsu Block)

## TECHNICAL STRENGTHS

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<b>Programming Languages</b>	Python(most fluent), MATLAB, Julia, C, C++, Verilog, Shell Script, Ruby, JavaScript, SQL
<b>Machine Learning Libraries</b>	Tensorflow, Keras, PyTorch, Scikit-learn, Chainer
<b>Software</b>	Git, Docker, PyBullet, Pyomo, Processing, Autodesk Fusion360
<b>OS</b>	MacOS, Ubuntu, Windows, TrueNAS, CentOS
<b>Hardware</b>	mbed, Arduino, Raspberry Pi, PhantomX AX Metal Hexapod

## LINKS

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<b>Portfolio</b>	<a href="https://denden047.github.io/index_en.html">https://denden047.github.io/index_en.html</a>
<b>GitHub</b>	<a href="https://github.com/DenDen047">https://github.com/DenDen047</a>
<b>Linkedin</b>	<a href="https://www.linkedin.com/in/naoya-muramatsu-a01182184/">https://www.linkedin.com/in/naoya-muramatsu-a01182184/</a>