NAOYA MURAMATSU

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sh.mn.nat@gmail.com

EDUCATION

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

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 (MITOU) 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 August 2016 – December 2016
Software Engineer Intern

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

Fixstars Corporation August 2014 – September 2014
Software Engineer Intern

· Worked on software optimisation for the microcomputer of cars.

PUBLICATIONS

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)

PROFESSIONAL EXPERIENCE

PAPER REVIEWER

· IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.

FELLOWSHIPS

2022 Incoming International Student Scholarship at University of Cape Town (35,000 ZAR)
Electrical Engineering P/G Scholarship at University of Cape Town (20,000 ZAR)

AWARDS

2019 **Super Creator** at MITOU Projects
(This award were given 16 creators from 27 people adopted from 300+ applications)
2018 MITOU Projects (2,304,000 JPY)
2018 **President's Award for Students** at University of Tsukuba
2017 **Student Presentation Award** at DEIM 2017
2015 **Third Prize** at RoboCupJunior Soccer 2015 (Hokushinetsu Block)

TECHNICAL STRENGTHS

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

LINKS

Portfolio	`https://denden047.github.io/index_en.html`
GitHub	`https://github.com/DenDen047`
Linkedin	`https://www.linkedin.com/in/naoya-muramatsu-a01182184/`