NAOYA MURAMATSU

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EDUCATION

University of Cape Town April 2021 – Present
PhD student in Electrical Engineering

· PhD Proposal title: "*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

Frogiraffe, Inc. November 2021 – Present
CEO

· This is my own company which provides technical consulting and develops novel software based on top-level machine learning research.

JUNGLE$^{\mathbf{X}}$, Inc. May 2022 – Present
Fellow

· Technical consultant for computer vision technology.

Good Answers, Inc. February 2021 – Present
Fellow

· Technical consultant and developing the motor control algorithm for electric scooters.

uSonar Co.,Ltd. (Landscape Co.,Ltd.) January 2020 – Present
Outside CTO

· Developing various 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.

Pixie Dust Technologies, Inc. August 2017 – April 2019
Software Engineer

· Acquired a new big project and 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 with poor computational resource.

Fixstars Corporation August 2014 – September 2014
Software Engineer Intern

· Worked on software optimisation for the microcomputer of cars.

PUBLICATIONS

JOURNALS

· **Naoya Muramatsu**, Hai-Tao Yu, Tetsuji Satoh, "Combining Spiking Neural Networks with Artificial Neural Networks for Enhanced Image Classification," *IEICE Transactions on Information and Systems*, 2023. doi: 10.1587/transinf.2021EDP7237

REFEREED CONFERENCES

· **Naoya Muramatsu***, Zico da Silva*, Daniel Joska, Fred Nicolls, Amir Patel, "Improving 3D Markerless Pose Estimation of Animals in the Wild using Low-Cost Cameras," in Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022) (*co-first authors).

· Daniel Joska, Liam Clark, **Naoya Muramatsu**, Ricky Jericevich, Fred Nicolls, Alexander Mathis, Mackenzie Mathis, Amir Patel, "AcinoSet: A 3D Pose Estimation Dataset and Baseline Models for Cheetahs in the Wild," in Proc. IEEE International Conference on Robotics and Automation (ICRA 2021).

· Chun Wei Ooi, **Naoya Muramatsu**, Yoichi Ochiai, "Eholo glass: Electroholography glass. A lensless approach to holographic augmented reality near-eye display," in Technical Briefs of 11th ACM SIGGRAPH Asia (SA 2018).

· Natsumi Kato*, Hiroyuki Osone*, Daitetsu Sato, **Naoya Muramatsu**, Yoichi Ochiai, "DeepWear: a Case Study of Collaborative Design between Human and Artificial Intelligence," in Proc. 12th ACM Twelfth International Conference on Tangible, Embedded, and Embodied Interaction (TEI 2018). (* co-first authors)

· Natsumi Kato, Hiroyuki Osone, Daitetsu Sato, **Naoya Muramatsu**, Yoichi Ochiai, "Crowd Sourcing Clothes Design Directed by Adversarial Neural Networks," in Adjunct Proc. 31st Neural Information Processing Systems (NIPS 2017 Workshop).

· **Naoya Muramatsu**, Chun Wei Ooi, Yuta Itoh, Yoichi Ochiai, "DeepHolo: Recognizing 3D Objects using a Binary-weighted Computer-Generated Hologram," in Technical Briefs of 10th ACM SIGGRAPH Asia (SA 2017).

· Mose Sakashita, Yuta Sato, Ayaka Ebisu, Keisuke Kawahara, Satoshi Hashizume, **Naoya Muramatsu**, Yoichi Ochiai, "Haptic Marionette: Wrist Control Technology Combined with Electrical Muscle Stimulation and Hanger Reflex," in in Adjunct Proc. 10th ACM SIGGRAPH Asia (SA 2017 Posters).

· **Naoya Muramatsu**, Ooi Chun Wei, Takashi Miyazaki, "Development of High Performance Filter for Indoor Positioning System," in Proc. 5th IIAE International Conference on Intelligent Systems and Image Processing 2017 (ICISIP 2017).
· **Naoya Muramatsu**, Kazuki Ohshima, Ryota Kawamura, Ooi Chun Wei, Yuta Sato, Yoichi Ochiai, "Sonoliards: Rendering Audible Sound Spots by Reflecting the Ultrasound Beams," in Adjunct Proc. 30th ACM User Interface Software and Technology (UIST 2017 Adjunct).

NON-REFEREED CONFERENCES

· **Naoya Muramatsu**, Hai-Tao Yu, "Combining Spiking Neural Network and Artificial Neural Network for Enhanced Image Classification," in Proc. 13th Data Engineering and Information Management (DEIM 2021).
· **Naoya Muramatsu**, Tetsuji Satoh, Takayasu Fushimi, "Product Attribute Extraction Method Based on Transition Pattern of Review Point of View," in Proc. 9th Data Engineering and Information Management (DEIM 2017). (Student Presentation Award)

PROFESSIONAL EXPERIENCE

PAPER REVIEWER

· IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022.
· ACM Augmented Human International Conference (AH), 2018.

CERTIFICATES

· Operations Research (1): Models and Applications (Coursera), National Taiwan University, 2022.
· Kinematics: Describing the Motions of Spacecraft (Coursera), University of Colorado Boulder, 2022.
· Motion Planning for Self-Driving Cars (Coursera), University of Toronto, 2021.
· Robotics: Mobility (Coursera), University of Pennsylvania, 2021.
· Julia Scientific Programming (Coursera), University of Cape Town, 2021.
· State Estimation and Localization for Self-Driving Cars (Coursera), University of Toronto, 2021.
· Visual Perception for Self-Driving Cars (Coursera), University of Toronto, 2021.

FELLOWSHIPS

2023 Incoming International Student Scholarship at University of Cape Town (35,000 ZAR)
Electrical Engineering P/G Scholarship at University of Cape Town (6,000 ZAR)
2022 Microsoft Research PhD Fellowship Africa (15,000 USD)
Incoming International Student Scholarship at University of Cape Town (35,000 ZAR)
Electrical Engineering P/G Scholarship at University of Cape Town (47,000 ZAR)
2018 MITOU Projects (2,304,000 JPY)

AWARDS

2019 **Super Creator** at MITOU Projects
(This award was presented to 16 individuals from 27 selected from over 300+ applicants.)
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, SQL
Software	PyTorch, Tensorflow, OpenCV, ROS, Pyomo, Docker, PyBullet, IPOPT, Processing
OS	MacOS, Ubuntu, Windows, TrueNAS, CentOS
Hardware	mbed, Arduino, Raspberry Pi, Jetson Orin

LINKS

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