YU MINEMATSU

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MSCS Student at New York University

PROFESSIONAL SUMMARY

Masters Computer Science student at New York University, Courant Institute of Mathematical Science specializing in machine learning and system operations. Committed to driving innovation by applying machine learning technology into real society. Poised to make a significant impact in the ever-evolving landscape of data-driven solutions in healthcare and other highly interesting areas.

EDUCATION

New York University *Aug 2023 - Present*
Master of Science in Computer Science, Courant Institute of Mathematical Science
The Open University of Japan *October 2020 - September 2021*
Bachelor of Art in Computer Science, Non-Degree Program, GPA: 3.73.
Kyushu University *April 2018 - March 2020*
Master of Science, Medical Quantum Science, Graduate School of Medical Sciences, GPA: 3.9
Magna Cum Laude
Kyushu University *April 2014 - March 2018*
Bachelor of Science in Medical Quantum Science, School of Medicine.

PUBLICATIONS AND CONFERENCES

Hiroshi Okamoto, Budrul Ahsan, **Yu Minematsu**, Iku Yoshimoto, Sota Kato. *A power law approach to predicting international conflicts: Lewis Fry Richardson revisited* the 80th Annual Midwest Political Science Association Conference, 2023

Hiroshi Ueyama M.D., **Yu Minematsu**(Philips) *Machine learning blood pressure prediction during general anesthesia* The 87th Annual Scientific Meeting of the Japanese Circulation Society, Proceeding

Yu Minematsu*, Budrul Ahsan and Yogish Mallya. *Artificial plaques' data generation for data augmentation in Cardiac Magnetic Resonance Imaging*, International Patent, Proceeding

Asaumi Yasuhide M.D., **Yu Minematsu** (Philips). *Advances in AI Imaging Technology in the Interventional Field: Risk Stratification Method Based on Non-Contrast T1-Weighted MRI Images Using Artificial Intelligence in Coronary Artery Disease Patients*, The 30th Annual Meeting of the Japanese Association of Cardiovascular Intervention and Therapeutics, 2022

Asaumi Yasuhide M.D., **Yu Minematsu**(Philips) *The Forefront of AI Application in Cardiovascular Diagnostic Imaging* The 85th Annual Scientific Meeting of the Japanese Circulation Society Special Symposium, 2021

Kenji Hirata M.D., **Yu Minematsu**(Philips) *PET/CT System with Digital Semiconductor Detector and Potential for AI Research*, The 60th Annual Scientific Meeting of the Japanese Society of Nuclear Medicine, 2020

Yu Minematsu*, Toshioh Fujibuchi, Hidetaka Arimura. *Development of method using sentiment analysis for anxiety opinion of radiation exposure by social big data.* Japanese Journal of Health Physics, 2020

Yu Minematsu*, Toshioh Fujibuchi, *A Method for Extracting People Anxiety Opinion of Radiation Exposure by Social Big Data*, The 75th the Annual Meeting of the Japanese Society of Radiological Technology, 2019

Yu Minematsu*, Toshioh Fujibuchi, *Optimization of Computational Parameters in CT Dosimetry by Monte Carlo Simulation*, The 12th Kyushu Radiation Medical Technology Conference, 2018
(All papers and presentations under a peer-reviewed.)

RESEARCH EXPERIENCE

AI Medical Services **Feb 2023 - July 2023**
Machine Learning Research Engineer ***Advisor: Dr. Yusuke Kato***

- Developed disease detection algorithms to classify texture types, such as gastric intestinal metaplasia (GIM), to screen potential GIM patients especially in the USA where has no GIM screening opportunity, which become malignant tumors. **Achieved over 90 % sensitivity** even for the types of GIM that MD cannot diagnose well. Presented and introduced Demo AI Detection System at DDW 2023. Utilized mainly Hierarchical Vision Transformer Architectures such as Swin. **Will co-research with Stanford University and University of Washington**.
- Implemented RTMDet and YOLOX to develop colon polyp detection algorithms to support MD's diagnosis, and designed various metrics for video object detection from aspects of AI-Users, Developers and Clinical Trials, 85% Sensitivity. These architectures were implemented through MMDetection and YOLOX.

Philips, Department of Research and Development **April 2020 - March 2023**
Research Data Scientist ***Advisor: Dr.Budrul Ahsan***

- Worked with Kansai Rosai Hospital, developed **state-of-the-art** blood pressure prediction algorithms based on 1dCNN, LSTM and Tree-based ones for monitoring surgical anesthesia. Oral presentation in 2023 Japanese Circulation Society Conference.
- Co-researched development of an automatic U-Net based detection for coronary plaques on Cardiac MRI with National Cerebral and Cardiovascular Center. **Submitted a paper and a patent** for data augmentation technique for blood vessel diseases. Presented to societies of cardiovascular scientific organizations.
- Developed Tree-based prediction algorithms, DT/RF/GBDT, for future machine failures and monitoring software for business teams. The prediction window software on PyQT has been working on trial terms and succeeded the machine failure prediction trial under actual maintenance operation.
- Programmed brain age prediction algorithm, ResNet/DenseNet/EfficientNet, on Brain-PET, and experimented architecture based regularization techniques, pi-model etc. Presented to Academic Conference in Society of Nuclear Medicine 2020 in Japan.
- Led above-mentioned research projects as a research project leader and individual contributor in collaboration with Philips Innovation Campus 2 members in India and 2 internship students.
- **One of the about 200 selected** for the two-year Philips World Wide Program out of applicants who were all junior employees at every Philips office and all college students applying to Philips.

Kyushu University **April 2016 - March 2020**
Student ***Advisor: Prof.Toshioh Fujibuchi***

- Researched the text network analysis method for anxious opinion for medical radiation from a million Tweets in Japanese to investigate the negative opinion toward medical radiation. Accepted a paper in the Japanese Journal of Health Physics and presented at the 76th Annual Meeting of the Japanese Society of Radiological Technology.
- Programmed Monte Carlo Simulation of radiation dose from Computed Tomography to measure the appropriate dose without human intervention and experiment. Presented at the 12th Kyushu Radiation Medical Technology Conference.

National Tsinghua University **December 2019 - January 2020**
Student ***Advisor: Prof.Yi-Shin Chen***

- Built Word Sense Disambiguation Algorithm based on BERT.

ENGINEERING EXPERIENCE

Skydisc, Inc. **October 2018 - December 2019**
Machine Learning Engineer Intern ***Japan***

· Developed anomaly detection and classification algorithms from Lexus engine sound data, which is one of TOYOTA's vehicles to fill up with older artisans' ability to pick up anomaly engines. Started to collect trial sound data with directional microphone for pre-experiment, and **reached a 90% accuracy** with the actual engine sound data. For sound-data preprocess, Mel-spectrum analysis and fourier transform were used through Librosa.

RELEVANT COURSES

The Open University of Japan	**Operating Systems**
	Algorithms and C Programming
	Computer Architecture
	Data Structure and C Programming
	Introduction to Computer Science
	Statistics
	Linear Algebra
	Differential Equations
	Discrete Mathematics
Udemy	**Assembly Language**
	Theory of Computation
	Database
Kyushu University	**Mathematical Optimization**
	Pattern Recognition
	Calculus

SKILLS

Programming	Python, SQL, R, Java, JavaScript, C/C++, Shell, CUDA
Deep Learning	Keras, TensorFlow, PyTorch, OpenCV, OpenMM, Librosa, Clear-ML
Framework	Qt, Flask, Django, Ruby on Rails
Databases	MySQL, MongoDB, GCP, Docker, Heroku, AWS EC2, Git, GitHub

EXTRA-CURRICULAR

ASHA, Specified Non-Profit Organization. **November 2020 - present**
Tech Strategy Manager, Volunteer ***Japan and Nepal***

· **Main Supporter: ETIC, KDDI, and Bill and Melinda Gates Foundation.**

· Facilitated census in a Nepal rural area, about 30,000 citizens, with 20 Nepali staff distributing identification cards for medicine and investigating personal information, and 5 members in Japan and a vendor, and Karma Health, an NGO in Nepal, and led our primary care application and electronic health record system development projects.

· Featured on **Japanese National Broadcast TV program (NHK)** for our health-tech projects (the TV Program). In addition, **awarded the vision hacker award sponsored by ETIC and Bill and Melinda Gates Foundation**, and was interviewed by KDDI Foundation, one of the biggest IoT Companies in Japan. (Interview Article (in Japanese))

The Boston Consulting Group and Ministry of Economy Trade and Industry Japan. May 2020 - February 2021
Reviewer, Volunteer ***Japan***

· Supported the program producing AI talents and 600 participants with METI and BCG, and advised them for the curriculum of AI-based practical business improvements.

Kyushu University. **January 2019 - December 2019**
President, Volunteer ***Japan***

· Built the committee for the design of Informed Consent Lecture for undergraduates, organizing over 30 committee members (+10 graduate students, +6 professors and +20 volunteers).

Kyushu University. **April 2014 - March 2018**
Captain, University Tennis Club ***Japan***

· Won second place in a university tennis tournament in a southern district of Japan.

SCHOLARSHIPS

Japanese Government Scholarship for NYU Education, 2023-2025
New York University Tuition Scholarship, 2023-2025
Repayment Exemption for Students with Excellent Grades, Japan Student Services Organization, 2020
Research Internship Grant, Japan Student Services Organization, 2020
Travel Grant, Japanese Society of Radiological Technology, 2019
Tuition Exemption, Kyushu University, 2018-2020
Scholarship, Ogata Kinen Kagaku Shinkou Zaidan (in Japanese), 2011-2018

Total Amount of Grants: About 20k USD

AWARDS

- University Tennis Competition in the southern district of Japan — **2nd place** 05/2015

INTERSET AND ACTIVITIES

- University Tennis Sport Club as a Captain
- A selected student (30/6000) of an Entrepreneur Business Internship held by IT venture
- Love tennis, books, travel, and people !