EHSAN ALIZADEH KASHTIBAN

github.com/Ehsan-Japan linkedin.com/ehsan-alizadeh ehsanalizadehkashtiban@email.com

EDUCATION

Osaka University April 2023 - Present
Master of Science in Physics

Osaka University April 2019 - March 2023
Bachelor of Science in Physics

Tokyo University of Foreign Studies April 2018 - March 2019
Japanese Language Center for International Students (JLC)

VIRTUAL EXCHANGE PROGRAMS

Shanghai Jiao Tong University February 2022 - June 2022
School of Mathematical Sciences
Course Title : Introduction to Lie groups and Lie algebra
Instructor : Prof.Stephan Tudor Ratiu
Final Grade : 96/100

Peking University February 2022 - June 2022
Course Title : Introduction to Contemporary China
Instructor : Dr.Yang Zhao
Final Grade : 90/100

RESEARCH EXPERIENCE

The Institute of Scientific and Industrial Research, Osaka University April 2023 - Present
Supervisor : Dr.Takafumi Fujita
-Worked on simulating a double quantum dot by using constant interaction model
-Worked on simulating a nanowire by using Thomas-Fermi approximation

School of Engineering Science, Osaka University May 2022 - December 2022
Supervisor : Prof.Keisuke Fujii
-Collaborated on employing the Automatic Quantum Circuit Encoding Algorithm to embed the MNIST dataset into quantum state amplitudes, using the Qulacs Quantum simulator for quantum machine learning research [1][2].

School of Science, Osaka University April 2019 - March 2023
Supervisor : Prof.Mikito Koshino
-Conducted research on the topological stability of the multi-gap nodes in PT-symmetric systems
-Investigated the formation of nodal lines and non-Abelian earring nodal links in three-band PT-symmetric systems
-Examined the dynamics of topological charge transfer in four-band PT-symmetric Hamiltonians

WORK EXPERIENCE

Researcher, PaMeLa Co. Ltd. August 2021 - March 2024

-Developed a PyQt5 GUI for time-frequency analysis of EEG data from Amazon S3
-Developed LSTM regression models to predict subjective pain levels from clinical EEG dataset

English Language Instructor, Osaka International House May 2023 - August 2023

-Taught English to Japanese high school students at Osaka International House as part of a cultural exchange program

Technical assistant, Graduate School of Frontier Biosciences November 2020 - May 2021
Supervisor : Dr.Aya Nakae

-Contributed to research on robot-assisted therapy, proving its pain mitigation effectiveness through EEG analysis of human-robot interactions dataset
-Built LSTM classifiers for the binary task of detecting pain versus no-pain states through EEG signal analysis, achieving an accuracy exceeding 70%

Interpreter, Kishiwada City Board of Education July 2020

-Worked as a Persian-Japanese interpreter for the secondary schools in Kishiwada City, Osaka Prefecture

Technical assistant, Graduate School of Engineering April 2020 - October 2020
Supervisor : Dr.Jun Miyake

-Engaged in hyperparameter tuning of a stacked autoencoder used in classifying mitochondrial DNA

INVITED TALK

Center for Information and Neural Networks (CiNET) November 2022
Presentation Title : Objective Evaluation of Pain by EEG

INTERNSHIP

Intern, The Graduate University for Advanced Studies August 2020
-Evaluated the properties of beam injection antenna for 54.5 GHz Electron Cyclotron Wave Heating system under the supervision of Dr. Yasuo Yoshimura.

POSTER PRESENTAION

IASP 2022 World Congress On Pain September 2022
Title : Objective evaluation of pain from experimental pressure stimulation by EEG.[3]

The 12th Congress of the European Pain Federation, Dublin April 2022
Title : The effect of being hugged by a robot on pain.[4]

PROGRAMMING SKILLS

Python : Advanced (4+ years experience)
Experienced in implementing PyTorch, TensorFlow, and OpenCV for data analysis and the development of machine learning models

Matlab : Intermediate (3+ years experience)
Experienced in the application of MATLAB's specialized toolboxes, including Deep Learning and Signal Processing for EEG analysis within machine learning frameworks

Qiskit : Intermediate (2+ years experience)
hands-on application of Qiskit for designing and running quantum algorithms and simulating quantum circuits

AWARDS AND SCHOLARSHIPS

Japanese government fully funded graduate scholarship
Granted a full scholarship for graduate studies in recognition of academic excellence

CiNet 2022 Research Award
Awarded for outstanding research presented at the 11th CiNet General Conference

Student English Presentation Contest
Achieved top ranking in the English Presentation category among university students across Osaka prefecture

Japanese government fully funded undergraduate scholarship
Granted a full scholarship for undergraduate studies in recognition of academic excellence

CERTIFICATES

Test of English as a Foreign Language (TOEFL iBT) October 2022
Reading : 27/30 , Listening : 28/30 , Speaking : 26/30, Writing : 21/30
Total Score : 102/120

Business Japanese Proficiency Test (BJT) March 2022
Listening : 5/7 , Listening & Reading : 4/7 , Reading : 6/7
Total Score : 508/800
Level : J2

J.TEST : Test of Practical Japanese April 2022
Reading & Writing : 412/500 , Listening : 455/500
Total Score : 867/1000
Level : Pre-A

Japanese Language Proficiency Test N1 (JLPT N1) September 2021
Vocabulary/Grammar : 51/60 , Reading : 60/60 , Listening : 46/60
Total Score : 157/180

Diplôme d'études en langue française B2 (DELF B2) March 2018
Reading : 16/25 , Speaking : 16.5/25 , Listening : 13.5/25 , Writing : 20/25
Total Score : 66/100 (Pass)

CONTACT INFORMATION

Dr.Takafumi Fujita
Associate Professor, The Institute of Scientific and Industrial Research, Osaka University
Email : fujita@sanken.osaka-u.ac.jp
Address : Department of Quantum System Electronics, Institute of Scientific and Industrial Research, Osaka University 8-1 Mihogaoka, Ibaraki, Osaka 567-0047, Japan

Prof.Mikito Koshino
Distinguished Professor, Graduate School of Science, Osaka University, Japan
Email : koshino@phys.sci.osaka-u.ac.jp
Address : Sci.Eng.Bldg.D D420 1-3, Machikaneyama, Toyonaka, Osaka, 560-8531, Japan

Prof. Keisuke Fujii
Distinguished Professor, Graduate School of Engineering Science, Osaka University
Email : fujii@qc.ee.es.osaka-u.ac.jp
Address : Sci.Eng.Bldg.D D420 1-3, Machikaneyama, Toyonaka, Osaka, 560-8531, Japan

Dr. Aya Nakae
Chief Researcher, Advanced Telecommunications Research Institute International, Kyoto
Visiting Professor, Graduate School of Frontier Biosciences, Osaka University
CFO, Pain Measurement Laboratory, (PaMeLa, Inc)
Email : nakae@fbs.osaka-u.ac.jp
Address : E601 Biosystems Building 6F, 1-3 Yamadaoka, Suita, Osaka, Japan

Dr. Jun Miyake
Professor, Graduate School of Engineering, Osaka University
Email : jun_miyake@bpe.es.osaka-u.ac.jp
Address : C605 2-8 Yamadaoka, Suita, Osaka, Japan

REFERENCES

[1] Shirakawa, T., Ueda, H., and Yunoki, S., Automatic quantum circuit encoding of a given arbitrary quantum state (2021). *arXiv preprint arXiv :2112.14524*.

[2] Suzuki, Y., Kawase, Y., Masumura, Y., Hiraga, Y., Nakadai, M., Chen, J., Nakanishi, K.M., Mitarai, K., Imai, R., Tamiya, S., and Yamamoto, T., 2021. Qulacs : a fast and versatile quantum circuit simulator for research purpose. *Quantum*, 5, p.559.

[3] Aya Nakae, Ehsan Alizadeh Kashtiban, Tetsuro Honda, Chie Kishimoto, and Kunihiro Nakai. Objective evaluation of pain from experimental pressure stimulation by EEG. In *IASP 2022 World Congress on Pain*, Toronto, Canada, September 2022.

[4] Aya Nakae, Ehsan Alizadeh Kashtiban, Tetsuro Honda, Chie Kishimoto, and Kunihiro Nakai. Objective evaluation of pain from experimental pressure stimulation by EEG. In *IASP 2022 World Congress on Pain*, Toronto, Canada, September 2022.

[5] Ehsan Alizadeh Kashtiban, Tetsuro Honda, Chie Kishimoto, Yuya Onishi, Hidenobu Sumioka, Masahiro Shiomi, and Aya Nakae. The effect of being hugged by a robot on pain. In *12th Congress of the European Pain Federation (EFIC2022)*, online, April 2022.