

Nam Tuan Ly

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Education

Ph.D., Computer Science, 2021

Tokyo University of Agriculture and Technology, Tokyo, Japan

Dissertation: *Handwritten Text Recognition by Deep Neural Networks*

Supervisors: **Masaki Nakagawa, Prof. Ph.D.** and **Keiko Kaneko, Prof. Ph.D.**

M.Sc, Computer Science, 2018

Tokyo University of Agriculture and Technology, Tokyo, Japan

Dissertation: *Segmentation-free Offline Handwritten Japanese Text Recognition by Deep Neural Networks*

Supervisor: **Masaki Nakagawa, Prof. Ph.D.**

BSc, Computer Science, 2013

Hanoi University of Science and Technology, Hanoi, Vietnam

Supervisor: **Nguyen Kim Khanh, Ph.D.**

Teaching Experience

Teaching Assistant, 10/2016 ~ 09/2018

Department of Computer and Information Sciences

Tokyo University of Agriculture and Technology, Japan

Courses: Pattern Recognition and Machine Learning, System Production Experiments

Research and Work Experience

Postdoctoral Researcher, 11/2021~03/2023

Digital Content and Media Sciences Research Division

National Institute of Informatics, Tokyo, Japan

Subject: *Table Analysis and Recognition*

Supervisor: **Atsuhiko Takasu, Prof. Ph.D.**

Research and Development (Part-time), 04/2016 ~ 09/2021

iLab Company, Tokyo, Japan

Subject: *Improve and develop the offline handwritten text recognition engine*

Research Assistant, 10/2016 ~ 09/2021

Department of Computer and Information Sciences

Tokyo University of Agriculture and Technology, Tokyo, Japan

Subject: *Offline handwritten recognition and historical document recognition by Deep Neural Networks*

Supervisor: **Masaki Nakagawa, Prof. Ph.D.**

Joint Research with Hitachi, Ltd., 10/2019 ~ 03/2020, and 10/2020 ~ 03/2021

Hitachi Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan

Subject: *Deep Neural Networks for offline handwritten Japanese text recognition*

Visiting Researcher, 10/2019 ~ 12/2019

Centre for Pattern Recognition and Machine Intelligence

Concordia University, Quebec, Canada

Subject: *Hand-Drawn Object Detection for Scoring Wartegg Zeichen Test (ICPRAI'20)*

Supervisor: **Ching Y. Suen, Prof. Ph.D.**

Research Student, 04/2016 ~ 09/2016

Department of Computer and Information Sciences

Tokyo University of Agriculture and Technology, Japan

Supervisor: **Masaki Nakagawa, Prof. Ph.D.**

System Engineer, 09/2013 ~ 03/2016

Dimage Share Inc., Tokyo, Japan

System Engineer

Journal Publications

1. **N. T. Ly**, K. C. Nguyen, C. T. Nguyen, and M. Nakagawa, "Recognition of Anomalously Deformed Kana Sequences in Japanese Historical Documents," IEICE Transactions on Information and Systems Vol.E102-D, No.8, pp.1554-1564, August 2019.
2. **N. T. Ly**, C. T. Nguyen, and M. Nakagawa, "An attention-based row-column encoder-decoder model for text recognition in Japanese Historical Documents," Pattern Recognition Letters, Vol. 136, pp. 134-141, August 2020 (**Q1, IF 4.757**).

Conference Publications

1. **N. T. Ly**, and A. Takasu, "An End-to-End Local Attention Based Model for Table Recognition," In Proceedings of the 17th International Conference on Document Analysis and Recognition - ICDAR2023, California, USA, 2023 (**To appear**).
2. **N. T. Ly**, and A. Takasu, "An End-to-End Multi-Task Learning Model for Image-based Table Recognition," In Proceedings of the 18th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications - VISIGRAPP2023, Lisbon, Portugal, 2023 (**Oral presentation**).
3. **N. T. Ly**, A. Takasu, P. Nguyen and H. Takeda, "Rethinking Image-based Table Recognition Using Weakly Supervised Methods," In Proceedings of the 12th International Conference on Pattern Recognition Applications and Methods - ICPRAM2023, Lisbon, Portugal, 2023.
4. **N. T. Ly**, T. T. Ngo, and M. Nakagawa, "A Self-Attention based Model for Offline Handwritten Text Recognition", In Proceedings of the 6th Asian Conference on Pattern Recognition - ACPR2021, Jeju Island, South Korea, 2021 (**Oral presentation**).
5. **N. T. Ly**, H. T. Nguyen, and M. Nakagawa, "2D Self-Attention Convolutional Recurrent Network for Offline Handwritten Text Recognition," In Proceedings of the 16th IAPR International Conference on Document Analysis and Recognition - ICDAR2021, Lausanne, Switzerland, 2021 (**Oral presentation**).
6. T. T. Ngo, H. T. Nguyen, **N. T. Ly**, and M. Nakagawa, "Recurrent neural network transducer for Japanese and Chinese offline handwritten text recognition", In Proceedings of the 16th IAPR International Conference on Document Analysis and Recognition Workshops - ICDARW2021, Lausanne, Switzerland, 2021 (**Oral presentation**).

7. **N. T. Ly**, C. T. Nguyen, and M. Nakagawa, "Attention Augmented Convolutional Recurrent Network for Handwritten Japanese Text Recognition," In Proceedings of the 17th International Conference on Frontiers of Handwriting Recognition - ICFHR2020, Dortmund, Germany, 2020 (**Oral presentation**).
8. **N. T. Ly**, L. Liu, C. Y. Suen and M. Nakagawa, "Hand-drawn Object detection for scoring Wartegg Zeichen Test", In Proceedings of the 2nd International Conference on Pattern Recognition and Artificial Intelligence - ICPRAI2020, Zhongshan City, China, 2020 (**Oral presentation**).
9. **N. T. Ly**, C. T. Nguyen, and M. Nakagawa, "An attention-based end-to-end model for multiple text lines recognition in Japanese Historical Documents," In Proceedings of the 15th IAPR International Conference on Document Analysis and Recognition - ICDAR2019, Sydney, Australia, 2019 (**Oral presentation**).
10. A. D. Le, D. Mochihashi, K. Masuda, H. Mima, and **N. T. Ly**, "Recognition of Japanese historical text lines by an attention-based encoder-decoder and text line generation," In Proceedings of the 5th International Workshop on Historical Document Imaging and Processing - HIP2019, Sydney, Australia, 2019 (**Oral presentation**).
11. **N. T. Ly**, C. T. Nguyen, and M. Nakagawa, "Training an End-to-end Model for Offline Handwritten Japanese Text Recognition by Generated Synthetic Patterns," In Proceedings of the 16th International Conference on Frontiers in Handwriting Recognition - ICFHR2018, Niagara Falls, USA, 2018 (**Oral presentation**).
12. **N. T. Ly**, C. T. Nguyen, K. C. Nguyen, and M. Nakagawa, "Deep Convolutional Recurrent Network for Segmentation-free Offline Handwritten Japanese Text Recognition," In Proceedings of the 14th IAPR International Conference on Document Analysis and Recognition - ICDAR2017, Kyoto, Japan, 2017 (**Oral presentation**).
13. H. T. Nguyen, **N. T. Ly**, K. C. Nguyen, C. T. Nguyen, and M. Nakagawa, "Attempts to recognize anomalously deformed Kana in Japanese historical documents," In Proceedings of the 4th International Workshop on Historical Document Imaging and Processing - HIP2017, Kyoto, Japan, 2017 (**Oral presentation**).
14. H. D. Nguyen, **N. T. Ly**, H. Truong, and D. D. Nguyen, "Multi-Column CNNs for skeleton-based human gesture recognition," In Proceedings of the 9th International Conference on Knowledge and Systems Engineering - KSE2017, Hue, Vietnam, 2017 (**Oral presentation**).
15. 来代誠仁, **Nam Tuan Ly**, Kha Cong Nguyen, 中川正樹, 山本和明, "階層化された情報システムのためのくずし字解読機能の試作," 日本情報考古学会第 42 回大会, 岡山大学津島キャンパス, 2019.
16. 佐藤旭、小林心、**Nam Tuan Ly**、Cuong Tuan Nguyen、北本朝展、中川正樹、"日本古典籍くずし字文書の文字列認識、" 第119回人文科学とコンピュータ研究会発表会、大阪市、02/2019.

Preprints

1. **N. T. Ly**, P. Nguyen, H. Takeda, A. Takasu, "TabIQA: Table Questions Answering on Business Document Images," arXiv:2303.14935 [cs.CV], 2023.

Awards and Honors

Awards

- ICDAR2023 Competition on Visual Question Answering on Business Document Images, **Runner-up**, 2023.
- The 16th International Conference on Frontiers in Handwriting Recognition, Aug 2018, Nominees for best student paper award.

- Tokyo University of Agriculture and Technology, **President's Award for Students**, Apr 2018.
- The Special Interest Group of Computers and the Humanities (Information Processing Society of Japan), “Recognizing anomalously deformed Kana by Deep Convolutional Recurrent Network”, **PRMU CH Award**, 2018.
- The Special Interest Group of Pattern Recognition and Media Understanding (The Institute of Electronics, Information and Communication Engineers, Japan), The 21st PRMU Algorithm Contest, **Best Algorithm Award**, 2017.
- The 4th International Workshop on Historical Document Imaging and Processing (HIP2017), **The IAPR Best Paper Award**, 2017.

Scholarship

- JIRITSU, Apr 2016 ~ Mar 2017.
- Hirose International Scholarship Foundation, Apr 2017 ~ Sep 2021.

Travel grants

- National Institute of Informatics (NII), Sydney, Australia, Sep 2019.
- National Institute of Informatics (NII), Hakodate, Hokkaido, Jan 2018.

Conferences and Training

Conferences:

- ICDAR, Japan, 2017.
- ICFHR, USA, 2018.
- ICDAR, Australia, 2019.
- ICPRAI, China, 2020.
- ICFHR, Germany, 2020.
- ICDAR, Switzerland, 2021.
- ICPRAM, Portugal, 2023.
- VISIGRAPP, Portugal, 2023.
- ICDAR, USA, 2023.

Academic Services

PC Member:

- The 17th International Conference on Document Analysis and Recognition, 2023.
- The 4th workshop on Intelligent Cross-Data Analysis and Retrieval, ICMR 2023.
- ICCCI 2020 Special Session on Deep Learning and Applications for Industry 4.0.

Review:

- Expert Systems with Applications (Journal).
- Pattern Recognition (Journal).
- International Journal on Document Analysis and Recognition (IJDAR).

Sub-reviewer:

- IEEE Transactions on Pattern Analysis and Machine Intelligence (Journal).
- Pattern Recognition Letter (Journal).
- IJCAI (2021).
- ICDAR (2017, 2019, 2021).
- ICFHR (2018, 2020)
- HIP (2017, 2019, 2021).

Relevant Skills

Computing skills

- Python, Matlab, C/C++, C#, Java, PHP, Assembly (MIPS).
- TensorFlow, PyTorch
- Windows, MacOS, Ubuntu, Latex.

Language skills

- Vietnamese, native speaker
- English, good
- Japanese, good

Other skills

- Machine Learning, Deep Learning, Algorithms.
- Strong background on mathematics.
- Teamwork and presentation.

References

Prof. Masaki Nakagawa

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Tokyo Univ. of Agri. & Tech.
E-mail: nakagawa@cc.tuat.ac.jp
<http://www.tuat.ac.jp/~nakagawa/>

Prof. Atsuhiko Takasu

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Division, National Institute of Informatics, Japan
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Prof. Ching Yee Suen

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Concordia University, Canada
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<http://explore.concordia.ca/ching-yee-suen>