

## SUMMARY

- 4 years of experience in AI/DL, mostly focused on Document Image Understanding.
- 1 year of experience in Data Science, focused on geophysical data.
- Co-authored 2 conference papers, current [Google Scholar](#) h-index: 2.
- Bachelor of Computer Science - Highest Ranking Graduate.

## EXPERIENCE

### AI Researcher/Engineer

Nov 2018 — Present

*Cinnamon AI*

*Hanoi, Vietnam*


- Building Document Intelligence technologies
  - Conducted researches, applied state-of-the-art methods to serve client projects.
  - Co-authored **2 papers** on Information Extraction.
  - Worked on **Information Extraction for Visually-rich Documents with limited data** using language models, **increased the f1-score by 2% - 7%** on several client data sets.
  - Worked on **Document-object Detection and Localization** on images, **over 85% IoU score achieved**.
  - Worked on **Document Image Classification**, **over 85% accuracy** achieved on a data set with **20+ classes**.
  - Worked on **Object Detection on Visually-rich Documents**, such as stamps and bullet point symbols.
  - Worked on **Data Synthesis/Augmentation** using image processing techniques for overcoming data shortage.
  - Other problems worked on: Text segmentation, printed/handwriting OCR, handled AI flow on client projects, contributed to internal libraries.
  - Collaborated with the BizDev team, facilitated alignment amongst RnD groups to develop business-oriented solutions.
- Internal data management system
  - Developed **synchronization and local version control features** for the CLI tool.
  - Initiated and took charge of **data standardization**: making data from client projects be collectively re-useable for RnD purposes.
  - Participated in system design and feature planning.
  - Aligned requests and expectations of different user groups (RnD members and DataOps members).
- Other tasks: Conducting/Facilitating technical sharing sessions; Training/Mentoring.
- Tools and technologies
  - Mainly used: **Python, Pytorch, Tensorflow/Keras, Transformers (Hugging Face), Git, OpenCV, Scikit-learn, LATEX**.
  - Also familiar with: DVC, Docker, Jenkins, CircleCI, KubeFlow, Elasticsearch.
  - Environments: GCP, AWS, Linux, Windows.

### Undergraduate Student Researcher

Aug 2017 — Sep 2019

*IOT Lab, University of Engineering and Technology - VNU*

*Hanoi, Vietnam*

- Worked on the [Well Insight platform](#) 
  - **Built predictive models for geophysical data** using machine learning and statistical methods.
  - Contributed to the Machine Learning module of the Well Insight platform.
  - Worked on: Facies/rock type classification; Time series prediction on well-logs data; Permeability regression; Integrated Prediction Error Filter Analysis (INPEFA) curve calculation; Cumulative and Federated learning for well-logs data.
- Tools and technologies: Python, Keras/Tensorflow, OpenCV, Scikit-learn, XGBoost, Javascript.

## PUBLICATIONS

- 1 Son, Nguyen Hong, **Hieu M Vu**, Tuan-Anh D Nguyen, and Minh-Tien Nguyen (2022). “Jointly Learning Span Extraction and Sequence Labeling for Information Extraction from Business Documents”. In: *arXiv preprint arXiv:2205.13434*.
- 2 Nguyen, Tuan-Anh D, **Hieu M Vu**, Nguyen Hong Son, and Minh-Tien Nguyen (2021). “A Span Extraction Approach for Information Extraction on Visually-Rich Documents”. In: *International Conference on Document Analysis and Recognition. Best Paper Award - Workshop on Document Images and Language (ICDAR 2021)*. Springer, pp. 353–363.
- 3 **Vu, Hieu M** and Diep Thi-Ngoc Nguyen (2020). “Revising FUNSD dataset for key-value detection in document images”. In: *arXiv preprint arXiv:2010.05322*.

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## EDUCATION

**Bachelor Degree, Computer Science (Honours Programme)**

*University of Engineering and Technology - VNU, Hanoi, Vietnam*

**Aug 2016 — Aug 2020**

*GPA: 3.83/4.00*

- **Highest Ranking Graduate.**

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## SKILLS

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|--------------------------|--|
| <b>Programming</b>       | <b>Python, Git, L<sup>A</sup>T<sub>E</sub>X</b> , Markdown, Java, C/C++, SQL, SPRQL.   |
| <b>Tools and Library</b> | <b>Pytorch, Transformers (Hugging Face)</b> , Tensorflow/Keras, Notebook, Github, OpenCV, Scikit-learn, Docker, LibROSA.                   |
| <b>AI Domains</b>        | <b>Information Extraction</b> , Document Intelligence, Document Understanding, Data Science, Natural Language Processing, Computer Vision. |
| <b>Environments</b>      | GCP, AWS, Linux, Windows.  |
| <b>Languages</b>         | Vietnamese (native), English (fluent), Japanese (JLPT N4).   |
| <b>Misc</b>              | Problem Solving, Attentive to detail, Presentation, Communication, Academic Research ( <a href="#">Google Scholar profile</a> ).           |

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## PROJECTS

**Voice Gender/Accent Classification**

*Zalo AI Challenge 2018* 

**Aug 2018 — Sep 2018**



- **4th place** on the Private Leaderboard, achieved **79.208% accuracy**.
- Individual participant, participated only during the last 10 days/1 month+ of the competition.
- Problem description: Classify the speaker's voice in a recording (typically under 3 seconds) by gender(male/female) and regional accent (northern/central/southern).
- About the competition: Zalo AI Challenge 2018 is a Kaggle-like competition hosted by Zalo - one of the biggest tech companies in Vietnam. The competition attracted over 700 teams competed in 3 challenges.

**Electric Meter OCR**

*University Coursework Project*

**Oct 2019 — Nov 2018**



- Achieved **0.08 on edit distance** while having the size of just **under 10MB** and processing time of under **0.3 seconds** per image on a normal laptop.
- Problem description: Extract the value on the dial from images of electric meters. The solution is meant to be used in embedded hardwares.