

# Nguyen (William) Nguyen

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## PROFESSIONAL SUMMARY

Senior Applied Scientist with 5+ years in AI research and translating research into business impact. Developed open-source domain-specific LLMs adopted by global semiconductor and maritime leaders. Specialized in Computer Vision, Natural Language Processing, and AI agents, with production pipelines that accelerate AI agents development cycles by 5×.

## WORK EXPERIENCE

**Senior Applied Scientist**, Aitomatic, Inc, Palo Alto, CA

08/2024 – present

- Domain-specific foundation model: Led development of SemiKong and Lllamarine, the first open-source Large Language Models (LLMs) for semiconductors and maritime domains, **adopted by global industry leaders** TSMC (semiconductors), Tokyo Electron (semiconductor equipment), and Furuno (maritime electronics).
- Use cases: **(1)** Semiconductor equipment root cause analysis: reduced engineers' troubleshooting time by 30%. **(2)** Maritime navigation assistant: achieved **100% accuracy** in recommending regulation-compliant actions under complex conditions by using Lllamarine and incorporating synthetic domain expert knowledge.
- TRAIN product: Led technical development of a platform enabling users to create domain-specific agents with minimal setup. Pioneered automated data curation (pretraining + finetuning) and expert knowledge synthesis methods, cutting training cycle time by 5× and enabling the company to support **20% more customers**.
- Agents: Developed ProSEA, an agent framework that learns from failure cases to self-improve performance.

**Outperformed algorithms from other providers in real-world device troubleshooting**, as confirmed by customers.

- Research contributions: Lead author of 2 peer-reviewed papers. Co-inventor (2nd listed, technical lead) on 2 US patents in domain-specific AI agents, and co-inventor on 1 patent in agentic architectures.

**Research Assistant**, University of Rochester, Rochester, NY

06/2022 – 06/2024

- Object state captioning: Proposed a new task to describe object states in detail. Designed a multimodal LLM that can perform QA, conversation, and reasoning.

**Achieved 90% of GPT-4V's performance** with a significantly smaller and faster model.

- Scene text spotting: Incorporated language priors to make the Scene text spotting system more robust, significantly surpassed state-of-the-art (SOTA) by **2-4% in every standard benchmark**.
- Instructional video understanding: Developed algorithms to understand human actions and architected task guidance algorithms from egocentric and instructional videos. ([Demo video](#)).

**AI Research Engineer**, VinAI Research (Qualcomm AI Research now), Hanoi, Vietnam

01/2022 – 06/2022

- Face recognition: Developed unified models for recognizing normal faces, faces with masks, and extreme pose faces. Improved masked face recognition by **18%** by generating synthetic masked face from normal face images. Built lightweight models for running on-edge devices by using knowledge distillation.

**AI Research Resident**, VinAI Research (Qualcomm AI Research now), Hanoi, Vietnam

12/2019 – 12/2021

- Scene text recognition: Incorporated knowledge from a dictionary into both the training and inference stage, surpassing the SOTA by 3-5%. Introduced a novel Vietnamese scene text understanding dataset.
- Scene text spotting for street sign: Architected text traffic sign recognition framework with faster inference; proposed novel annotation method that reduced annotation costs by **50%** while maintaining quality.

**AI Engineer Intern**, Teko, Hanoi, Vietnam

04/2019 – 11/2019

- Product Clustering: Represent e-commerce product data by attributes and product descriptions, building an automated pipeline from data collection, feature selection, dimensionality reduction with VAE, and clustering. Build a visualization dashboard for product analysis.

## TECHNICAL SKILLS

**Programming Languages**

Python, C/C++, Bash, SQL

**Machine Learning / Deep Learning**

Slurm, PyTorch, TensorFlow, Scikit-learn, MLlib, SciPy, statsmodels

**LLM / Agents / RAG**

LangChain, LlamaIndex, vLLM, HuggingFace, OpenAI API, Ollama, FAISS, TRL

**Data & Visualization**

PySpark, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Bokeh, Dash

**CV / NLP Toolkits**

OpenCV, Detectron2, CLIP, LLaVA, Tesseract, SpaCy, NLTK, BeautifulSoup

**Infrastructure & Deployment**

GCP (VMs for training/hosting), Docker, Git, Postman

**Full-stack Prototyping**

Streamlit (for rapid AI demos), Flask, React

## PROFESSIONAL SERVICES

**Reviewer:** WACV 2022, CVPR 2023, CVPR 2024, ACM MM 2024, AAAI 2025, CVPR 2025

**Invited Speaker:** VinAI Research Workshop 2021, OSAI4MU Workshop (AAAI'25).

**Organizer:** Vietnamese Scene Text Recognition Challenge 2021.

## EDUCATION

**University of Rochester**, Rochester, NY

08/2022 – 05/2024

M.S. in Computer Science

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

08/2016 – 08/2020

B.S. in Computer Science

## PUBLICATIONS

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1. **William Nguyen**, An Phan, Konobu Kimura, Hitoshi Maeno, Mika Tanaka, Quynh Le, William Poucher, Christopher Nguyen, “*Llamarine: Open-source Maritime Industry-specific Large Language Model*”, The 39th Annual Conference of the Japanese Society for Artificial Intelligence, 2025.
2. Christopher Nguyen, **William Nguyen**, Atsushi Suzuki, Daisuke Oku, Hong An Phan, Sang Dinh, Zooey Nguyen, Anh Ha, Shruti Raghavan, Huy Vo, Thang Nguyen, Lan Nguyen, Yoshikuni Hirayama, “*SemiKong: Curating, Training, and Evaluating A Semiconductor Industry-Specific Large Language Model*”, OSAI4MU, AAAI, 2025.
3. Vinh Luong, Sang Dinh, Shruti Raghavan, **William Nguyen**, Zooey Nguyen, Quynh Le, Hung Vo, Kentaro Maegaito, Loc Nguyen, Thao Nguyen, Anh Hai Ha, Christopher Nguyen, “*DANA: Domain-Aware Neurosymbolic Agents for Consistency and Accuracy*”, preprint, 2024.
4. Jing Bi, Yunlong Tang, Luchuan Song, Ali Vosoughi, **Nguyen Nguyen**, Chenliang Xu, “*EAGLE: Egocentric AGgregated Language-video Engine*”, ACM Multimedia (ACMMM), 2024.
5. **Nguyen Nguyen**, Jing Bi, Ali Vosoughi, Yapeng Tian, Pooyan Fazili, Chenliang Xu, “*OSCaR: Object States Captioning and State Changes Representation*”, NAACL, 2024.
6. Jing Bi\*, **Nguyen Nguyen\***, Ali Vosoughi\*, Chenliang Xu (\* equal contribution), “*MISAR: A Multimodal Instructional System with Augmented Reality*”, AV4D, International Conference on Computer Vision (ICCV), 2023.
7. **Nguyen Nguyen**, Yapeng Tian, Chenliang Xu, “*Efficiently Leveraging Linguistics Knowledge for Scene Text Spotting*”, preprint, 2023.
8. **Nguyen Nguyen**, Thu Nguyen, Vinh Tran, Triet Tran, Thanh Duc Ngo, Thien Nguyen, Minh Hoai, “*Dictionary-guided Scene Text Recognition*”, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

## PATENTS

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1. Christopher Nguyen, **Manh-Nguyen Nguyen**, Hong An Phan, Zooey Nhu-Quynh Nguyen, The-Vinh Luong, Elise Nhu-Y Nguyen, Thomas Rasmussen, Anh Hai Ha, Phi-Hung Vo, Xuan-Sang Dinh, Huy-Thuan Bui, Anh-Quoc Dang, Timothy Michael Gerard Rozario, “*Delivering Domain-Expert Agents and Models Using Synthetic Knowledge*”, US Patent App. 63/726,322, 2024.
2. Christopher Nguyen, **Manh-Nguyen Nguyen**, Hong An Phan, Zooey Nhu-Quynh Nguyen, The-Vinh Luong, Elise Nhu-Y Nguyen, Thomas Rasmussen, Anh Hai Ha, Phi-Hung Vo, Xuan-Sang Dinh, Huy-Thuan Bui, Anh-Quoc Dang, “*Delivering Domain-Expert Agents for Improving Problem-Solving*”, US Patent App. 63/721,419, 2024.
3. Christopher Nguyen, The Vinh Luong, Xuan Sang Dinh, Zooey Nhu-Quynh Nguyen, Shruti Raghavan, **Manh Nguyen Nguyen**, Quynh Thi-Tham Le, Phi Hung Vo, Tan Loc Nguyen, Anh Hai Ha, Phuong Thao Nguyen, “*Domain-Aware Neurosymbolic Agents For Improving Problem-Solving Accuracy And Consistency*”, US Patent App. 63/696,337, 2024.

## REFERENCES

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The following individuals have agreed to serve as references and can provide insight into my qualifications and experience. Please contact me before reaching out to them.

**Dr. Christopher Nguyen**  
Chief Executive Officer  
Aitomatic, Inc  
Email: [ctn@aitomatic.com](mailto:ctn@aitomatic.com)

**Professor Yapeng Tian**  
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University of Texas at Dallas  
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