Khai-Nguyen Nguyen

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Google Scholar

Education

College of William and Mary — Virginia, USA
Graduate Student in Computer Science — 2023 - current
- Research area: Natural Language Processing, Trustworthy AI
- GPA: 3.96/4.00

Bucknell University — Pennsylvania, USA
B.Sc. in Computer Science and Engineering, minor in Statistics — 2019 - 2023
- GPA: 3.94/4.00

Work Experiences

CodaMetrix | Boston, USA — 2025.05 - 2025.08
- Developed DSPy-based LLM judge system to evaluate and correct human-annotated medical entities, improving annotation quality by 2% F1 over human baseline

CodaMetrix | Boston, USA — 2024.05 - 2024.08
- Trained a BERT-based LLM for ICD-10 multilabel classification, outperforming the current system-in-use **by 4% accuracy**
- Accelerate training speed using distributed and parallel training on Databricks, increasing the training speed up to **4 times**

Cazoodle | Illinois, USA — 2023.05 - 2023.08
- Developed a query expansion system that utilize LLMs to **comprehend user intent** for targeted keyword recommendation
- Built and deployed a feature-rich Django interface using ElasticSearch BM25 search engine for comprehensive end-to-end testing

Research Experiences

Auburn University, Alabama, USA
Remote Researcher. Mentor: Dr. Anh Totti Nguyen — 2025.01 - current
- Led the *Vision Language Models are Biased* paper, demonstrating systematic failures in leading VLMs when visual evidence contradicts language priors
- Developed VLMBias benchmark exposing critical weaknesses in leading models (Claude-3.7, GPT-4o-mini, Gemini-2.5-Pro), which achieve only 17% accuracy when counting familiar objects with subtle modifications

College of William and Mary, Virginia, USA
Researcher. Mentor: Dr. Antonio Mastropaolo — 2024.09 - current
- Developing SHAP-based methods to improve code generation interpretability
- Finetuned Code LLM models (starcoder, deepseek-coder, CodeLLama) for code summarization using QLoRA and benchmarked them against full parameter finetuning versions, achieving a 1-2% increase in BLEU, ROUGE, METEOR

FPT Software AI Center, Vietnam
Affiliated Researcher. Supervisor: Dr. Truong-Son Hy — 2024.05 - 2024.09
- Developed multimodal and multitask benchmarks for the medical domain
- Developed distributed training pipelines for LLMs (Mistral, Flan-T5, Llama-3), improving training efficiency by 4 times.
- Collected and leveraged **human reasoning** during dataset construction to improve sentiment analysis models' performance on ASR data (**+1% accuracy**) through chain-of-thought augmented distillation
- Designed a human-LLM collaborative annotation strategy to generate high quality synthetic data for medical dialogue summarization

SELECTED PUBLICATIONS
♣: *equal contribution*

1. Vision Language Models are Biased

   An Vo♣, **Khai-Nguyen Nguyen**♣, Mohammad Reza Taesiri, Vy Tuong Dang, Anh Totti Nguyen4†, Daeyoung Kim

   AI4Math Workshop @ ICML 2025 & Submitted to Neurips 2025

2. Sentiment Reasoning for Healthcare

   Khai-Nguyen Nguyen♣, Khai Le-Duc♣, Bach Phan Tat, Duy Le, Truong-Son Hy

   ACL 2025, Industry Track (Oral)

3. Medical Spoken Named Entity Recognition

   Khai Le-Duc, David Thulke, Hung-Phong Tran, Long Vo-Dang, **Khai-Nguyen Nguyen**, Truong-Son Hy, Ralf Schluter

   NAACL 2025, Industry Track

4. Real-time Speech Summarization for Medical Conversations.

   Khai Le-Duc♣, **Khai-Nguyen Nguyen**♣, Long Vo-Dang, Truong-Son Hy

   Interspeech 2024 (Oral)

5. Getting away with more network pruning: From sparsity to geometry and linear regions

   Jeffrey Cai♣, **Khai-Nguyen Nguyen**♣, Nishant Shrestha, Aidan Good, Ruisen Tu, Xin Yu, Shandian Zhe, Thiago Serra

   CPAIOR 2023 & Workshop on Sparsity in Neural Networks, ICLR 2023

6. Resource-Efficient & Effective Code Summarization

   Saima Afrin, Joseph Call, **Khai-Nguyen Nguyen**, Oscar Chaparro, Antonio Mastropaolo

   ACM International Conference on AI Foundation Models and Software Engineering (FORGE 2025)

PRESENTATIONS

Medical Spoken Named Entity Recognition
Poster presentation at NAACL 2025 Industry Track

Real-time Speech Summarization for Medical Conversations
Oral presentation at Interspeech 2024 & Poster presentation at MASC-SLL 2024

Like a bilingual baby: The advantage of visually grounding a bilingual language model
Poster presentation at Susquehanna Valley Undergraduate Research Symposium 2022 & Kalman Symposium 2022

PROJECTS

Backplane Defect Detection
Bucknell University, USA   2022.08 - 2023.05
- Finetuned DenseNet and ResNet architectures for defect classification on 1000 training samples with class imbalance, achieving an **96.9% accuracy** and **0.96 F-1**
- Applied **GradCAM** to **localize defect** and improve model **interpretability** for users

AWARDS AND HONORS

- **Recipient** Computer Science Fellowship, College of William and Mary   2023
- **Dean's List** Bucknell University   2019 – 2023
- **Recipient**, Program for Undergraduate Research Grant, Bucknell University   2021
- **Honorable Mention**, Mathematical Contest in Modeling   2020