Konstantin Golobokov

kogolobo@uw.edu ● Seattle, WA ● (610) 322-4132 ● GitHub ● LinkedIn Profile

Education

B.Sc.Eng. Computer Science, University of Michigan – (3.8/4.0) Aug 2018
Summa Cum Laude Honors, Varsity Wrestling Team Letter Winner

M.S. Applied & Computational Mathematics, University of Washington – (4.0/4.0) Jun 2024

Ph.D. Applied Mathematics, University of Washington Jun 2029

Objective

As an experienced machine learning researcher transitioning to a PhD in Applied Mathematics, I am seeking a **summer research internship** focused on developing efficient **deep learning methods**. With a strong foundation in applied machine learning, bolstered by impactful contributions at Microsoft and rigorous academic training, **I aim to advance the field through innovative research**.

Skills

- **Machine Learning:** Natural Language Generation, Representation Learning, Few-Shot Learning, Semantic Parsing
- **Mathematics:** Convex Optimization, Numerical Linear Algebra, Statistical Inference
- **Programming Languages:** Python 3, U-SQL, C++, C#, MATLAB, C, Java
- **Computational Packages:** PyTorch, HuggingFace Transformers, OpenCV, Scikit-learn, NumPy, SciPy
- **General-Purpose Tools**: Git, Make, Bash, PowerShell, Microsoft Excel, Azure Machine Learning Studio

Experience

Senior Applied Researcher, Microsoft Corporation, Azure AI, Redmond, WA Sept 2023 – Feb 2024

- Researched **parameter-efficient training** for **Large Language Models** on multi-GPU clusters
- Benchmarked open-source models on language modeling tasks, provided **finetuning quality comparison** across LLama and OpenAI models, reduced uncertainty for client teams and senior leadership
- Built quality monitoring infrastructure to **detect finetuning quality regressions**

Applied Researcher, Microsoft Corporation, Azure AI, Bellevue, WA Aug 2022 – Sept 2023

- Built a research demo of **ChatGPT** augmented with domain-specific knowledge in-context; empowered **70+ customer teams** to onboard product scenarios, and recorded **10,000 users in 2 months**
- **Researched semantic parsing** approaches for code generation, focusing on low-domain programming languages; produced **1 publication** and **1 patent** application
- **Lead maintainer** of software library for training data synthesis, enabling **6 client teams** to make product impact
- Adapted **GPT3** and **Codex** models by fine-tuning and in-context learning to support **3 production scenarios**
- Led coordination with product teams, sourced feedback, and **decided project direction.**

Machine Learning Scientist, Microsoft Corporation, Bing Ads, Bellevue, WA Sept 2018 – Aug 2022

- Researched natural language generation for ads domain; **led 2 publications** that contributed science
- **Developed cutting-edge models** for controlled text generation and unsupervised representation learning for ads text, enabling BingAds customers with high-quality and diverse ad texts
- **Led 3 literature review and research planning sessions** and analyzed promising research directions to ensure the rigor and precision in our work
- **Presented research results** in 3 conferences and 3 technical talks to share knowledge with Microsoft applied research community, as well as in 7 marketplace review meetings to pitch ideas to the leadership team
- Owned **6 production launches** in BingAds marketplace, producing up to **+10.65% ads revenue gain**
- Successfully **led 3 product initiatives** across applied science, engineering, and program management teams

Algorithm R&D Intern, Lyrical Labs, Chicago, IL May 2017 – Aug 2017

- Researched, designed, and implemented machine learning approaches to detect salient regions in a video frame and improve video encoding quality
- Optimized the machine learning code for performance and integrated it into industrial video compression pipeline to serve as a product to customers
- Significantly **improved video encoding quality** on 5 customer video clips

Publications

- **Golobokov, K**., Lin, Z., Zhang, H., Hu, Y., Al-Kofahi, Y., Malsan, J., Cao, H., Fatade, D., 2022. DataGen: A Data-Centric Modeling Framework for NL-to-Code Tasks. *Microsoft Journal of Applied Research*
- **Golobokov, K.**, Chai, J., Dong, V.Y., Gu, M., Chi, B., Cao, J., Yan, Y., Liu Y., 2022. DeepGen: Diverse Search Ad Generation and Real-Time Customization. *EMNLP 2022*
- Chai, J., Pryzant, R., Dong, V.Y., **Golobokov, K.**, Zhu, C., Liu Y., 2022. FAST: Improving Controllability for Text Generation with Feedback Aware Self-Training. *Preprint*
- **Golobokov, K**., Chai, J., Dong, V.Y., Gu, M., Chi, B., Cao, J., Yan, Y., Liu Y., 2022. DeepGen V2: Diverse Search Ad Generation and Real-Time Customization. *Microsoft Journal of Applied Research*
- Yan. Y., Liu, Y., **Golobokov, K.**, Gu, M., Cao, J., Wang, X., Xing., X, Huang, S., Wei, F., Chi, A., Cui, D., Wu, J., 2020. DeepGen – Automatic Ad Creative Generation with Deep NLG Models. *Microsoft Journal of Applied Research*
- Lomize, A.L., Hage, J.M., Schnitzer, K., **Golobokov, K.**, LaFaive, M.B., Forsyth, A.C., Pogozheva, I.D., 2019. PerMM: A Web Tool and Database for Analysis of Passive Membrane Permeability and Translocation Pathways of Bioactive Molecules, *Journal of Chemical Information and Modeling*

Projects

Video Saliency Prediction Via Frame Segmentation and Motion Estimation, Seattle, WA May 2022 – Sep 2023

- Continued a research project of personal interest with a supervisor from Lyrical Labs
- Re-implemented feature extraction logic, added visual feature overlays; contributed 1000+ lines of code

System Design in C++ Search Engine Project, Ann Arbor, MI Jan 2018 – Apr 2018

- Wrote a functioning search engine from scratch in C++; designed own data structures. Wrote 3000 lines of code.
- Optimized code performance with OS primitives. Crawled 8,000+ pages of Wikipedia in a proof-of-concept index.

Patents

- **Golobokov, K**., Lin, Z., Zhang, H., Hu, Y., Al-Kofahi, Y., Malsan, J., Cao, H., Fatade, D., 2023. Generation of Synthetic Training Data Using Grammar Mapping, 412363-US-NP
- Chai, J., **Golobokov, K.**, Dong, V.Y., Pryzant, R., Liu, Y., 2022. FAST: Improving Controllability for Conditional Text Generation with Feedback Aware Self-Teaching, filed by Microsoft, 411712-US-NP
- Chai, J., **Golobokov, K.**, Chi, B., Gu, M., Dong, V.Y., Cao, J., Liu, Y., 2021. Generating Diverse Electronic Summary Documents for a Landing Page, filed by Microsoft, 410733-US-NP