

Willow Hughes

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Education

MS	Western Washington University Computer Science	Bellingham, WA Jan 2026 – Mar 2027
BS	Western Washington University Computer Science GPA: 3.84 / 4.00	Bellingham, WA Jan 2023 – Dec 2025

Experience

Premera Blue Cross Co-Founder & CTO	San Francisco, CA June 2023 – present
<ul style="list-style-type: none"> Built foundation model infrastructure serving 2M+ monthly API requests with 99.97% uptime Raised \$18M Series A led by Sequoia Capital, with participation from a16z and Founders Fund Scaled engineering team from 3 to 28 across ML research, platform, and applied AI divisions Developed proprietary inference optimization reducing latency by 73% compared to baseline 	
NVIDIA Research Research Intern	Santa Clara, CA May 2022 – Aug 2022
<ul style="list-style-type: none"> Designed sparse attention mechanism reducing transformer memory footprint by 4.2x Co-authored paper accepted at NeurIPS 2022 (spotlight presentation, top 5% of submissions) 	
Google DeepMind Research Intern	London, UK May 2021 – Aug 2021
<ul style="list-style-type: none"> Developed reinforcement learning algorithms for multi-agent coordination Published research at top-tier venues with significant academic impact <ul style="list-style-type: none"> ICML 2022 main conference paper, cited 340+ times within two years NeurIPS 2022 workshop paper on emergent communication protocols Invited journal extension in JMLR (2023) 	
Apple ML Research Research Intern	Cupertino, CA May 2020 – Aug 2020
<ul style="list-style-type: none"> Created on-device neural network compression pipeline deployed across 50M+ devices Filed 2 patents on efficient model quantization techniques for edge inference 	
Microsoft Research Research Intern	Redmond, WA May 2019 – Aug 2019
<ul style="list-style-type: none"> Implemented novel self-supervised learning framework for low-resource language modeling Research integrated into Azure Cognitive Services, reducing training data requirements by 60% 	

Projects

FlashInfer	Jan 2023 – present
Open-source library for high-performance LLM inference kernels	
<ul style="list-style-type: none"> Achieved 2.8x speedup over baseline attention implementations on A100 GPUs Adopted by 3 major AI labs, 8,500+ GitHub stars, 200+ contributors 	

NeuralPrune

Jan 2021

Automated neural network pruning toolkit with differentiable masks

- Reduced model size by 90% with less than 1% accuracy degradation on ImageNet
- Featured in PyTorch ecosystem tools, 4,200+ GitHub stars

Publications

Sparse Mixture-of-Experts at Scale: Efficient Routing for Trillion-Parameter Models

July 2023

John Doe, Sarah Williams, David Park
[NeurIPS 2023]

Neural Architecture Search via Differentiable Pruning

Dec 2022

James Liu, John Doe
[NeurIPS 2022, Spotlight]

Multi-Agent Reinforcement Learning with Emergent Communication

July 2022

Maria Garcia, John Doe, Tom Anderson
[ICML 2022]

On-Device Model Compression via Learned Quantization

May 2021

John Doe, Kevin Wu
[ICLR 2021, Best Paper Award]

Selected Honors

- MIT Technology Review 35 Under 35 Innovators (2024)
- Forbes 30 Under 30 in Enterprise Technology (2024)
- ACM Doctoral Dissertation Award Honorable Mention (2023)
- Google PhD Fellowship in Machine Learning (2020 – 2023)
- Fulbright Scholarship for Graduate Studies (2018)

Skills

Languages: Python, C++, CUDA, Rust, Julia

ML Frameworks: PyTorch, JAX, TensorFlow, Triton, ONNX

Infrastructure: Kubernetes, Ray, distributed training, AWS, GCP

Research Areas: Neural architecture search, model compression, efficient inference, multi-agent RL

Patents

1. Adaptive Quantization for Neural Network Inference on Edge Devices (US Patent 11,234,567)
2. Dynamic Sparsity Patterns for Efficient Transformer Attention (US Patent 11,345,678)
3. Hardware-Aware Neural Architecture Search Method (US Patent 11,456,789)

Invited Talks

4. Scaling Laws for Efficient Inference — Stanford HAI Symposium (2024)
3. Building AI Infrastructure for the Next Decade — TechCrunch Disrupt (2024)
2. From Research to Production: Lessons in ML Systems — NeurIPS Workshop (2023)
1. Efficient Deep Learning: A Practitioner's Perspective — Google Tech Talk (2022)

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