# Xuming Huang

I'm an innovative CS undergrad at University of Wisconsin - Madison, exploring the cutting edge where AI meets systems, passionate about transforming bold ideas into rigorous research. My research interest sits at the intersection of **Artificial Intelligence**, **Systems**, and **Security**.

Currently advised by Professor Remzi Arpaci-Dusseau and Vinay Banakar at The ADvanced Systems Laboratory , I'm developing LinuxGuard—exploring how large language models and RAG-enhanced architectures can automate vulnerability detection in the Linux kernel, leveraging machine learning to enhance the reliability and security of critical system software.

During my summer in Stanford , I achieved A+ in CS107 Computer Organization & Systems and A in CS161 Algorithms. While there, I discovered and assisted to fix critical access control misconfigurations in Stanford's AFS directories—world-readable solution binaries and exposed teaching materials across multiple courses. This experience crystallized my commitment to systems security research, directly inspiring my current work on automated vulnerability detection.

**Email:** xuming@cs.wisc.edu
**Portfolio:** https://xuming.ai
**CV:** https://xuming.ai/cv/Academic_Resume.pdf
**Google Scholar:** https://scholar.google.com/citations?user=Wd0QQ7kAAAAJ&hl=en
**GitHub:** https://github.com/mac-huang
**LinkedIn:** https://www.linkedin.com/in/xuminghuang/

# Portfolio Links

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**Featured Projects:**

- BST & Red-Black Tree Visualizer - https://xuming.ai/demos/bst-tree.html
- K-Map Visualizer (2D & 3D) - https://xuming.ai/demos/kmap-visualizer-fixed.html
- x86-64 Memory Layout - https://xuming.ai/demos/x86-64-memory-enhanced.html
- Heap Allocator - https://xuming.ai/demos/heap-allocator.html
- Transformer Architecture - https://xuming.ai/demos/transformer-architecture.html

**Deep Learning Implementations:**

- Understanding Transformers - https://github.com/Mac-Huang/Transformer
- GPT Implementation Guide - https://github.com/Mac-Huang/GPT
- Word2Vec - https://github.com/Mac-Huang/Word2Vec
- LSTM Tasks - https://github.com/Mac-Huang/LSTM_Tasks
- Neural Machine Translator - https://github.com/Mac-Huang/Translator

**xuming.ai**