

The logo for UMass Amherst, featuring the text "UMassAmherst" in a serif font. The "U" and "A" are in a dark red color, while "Mass" and "herst" are in black. A vertical line is positioned to the right of the text.

UMassAmherst

Manning College of Information
& Computer Sciences

SOURCE CODE

Shiqing Ma, UMass Amherst

Oct. 5, 2023

About

- Assistant Professor at UMass Amherst
- Various centers & institutes
 - Cybersecurity, Data Science, Information retrieval, etc.
 - Professional developers, researchers, grad students, research staff, postdocs, etc.
 - Experiences with real-world security investigation, etc.
- Massachusetts Green High Performance Computing Center
 - Home of several Top-500 HPCs
 - Unity cultures
- Award-winning CSCF and staff team

What We Do?

- Software Security
 - Program analysis, forensics, APT, intrusion detection
- AI Safety
 - Focus on building trustworthy AI models: poisoning, adversarial examples, etc.
 - Extended to other scenarios, e.g., IP protection in GenAI
- Software Engineering
 - Code clone, debugging, specification, program repair

SOURCE CODE

- Related Expertise
 - Program analysis on both source code and binary
 - Code clone detection (from syntax clone to semantic clone), generating binary signatures
 - Stylometry in NLP and comments
 - For software engineering tasks
 - Using LLM for attack activity clustering, detection, etc.
 - New training methods for highly imbalanced security data
- Preliminary
 - 50% accuracy improvement on public and private datasets, with some developed methods

UMassAmherst

Manning College of Information
& Computer Sciences

COMPUTING FOR THE COMMON GOOD

Shiqing Ma

shiqingma@cs.umass.edu

<https://people.cs.umass.edu/~shiqingma/>