

Donghoon Kim

Professor, Department of Computer Science, Arkansas State University

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Research Interests

Zero Trust security for cyber-physical systems (CPS) and embedded or robotic platforms; real-time malware detection across Android, Windows, and IoT environments; privacy and traffic analysis, including Tor website fingerprinting; secure and resilient software systems; applied machine learning for cybersecurity and bioinformatics.

Appointments

Arkansas State University, Jonesboro, AR, USA

Professor (July 2026–present)

Associate Professor (July 2021–June 2026)

Assistant Professor (Aug 2016–June 2021)

Industry Experience

IBM (Software Engineer Intern, Sept 2015–July 2016)

SAS Institute (Software Engineer Intern, May 2012–Aug 2012)

Samsung Electronics (Software Engineer, Feb 2004–Mar 2006)

Education

Ph.D., Computer Science, North Carolina State University, 2016

Advisor: Mladen A. Vouk — Dissertation: Securing Data Flows within Software Application Networks in Cloud Environments

M.S., Computer Science, Auburn University, 2003

B.A., Computer Science, Kangnung National University (Now Kangwon National University Gangneung Campus), 1999

Selected Funded Grants

- **AR INBRE Pilot Study** (PI), *Machine Learning Frameworks for Genome-Based Prediction and Prioritization of Antibiotic Susceptibility*, \$70,650, May 2026–Apr 2027.
- **NSF E-RISE RII** (Co-PI), *Arkansas Smart Transportation Research Incubator through Data Engineering and Science*, \$498,518 (of \$7M), July 2025–June 2029.

- **NSF EPSCoR RII Track-1 DART** (Senior Personnel), *Data Analytics that are Robust and Trusted*, senior personnel portion ~\$500,000 (of \$20M), July 2020–June 2026.

Selected Publications (recent and selected)

- Kyungtae Kim, Doosung Hwang, and **Donghoon Kim** "On the Spatiotemporal Generalization Limits of Website Fingerprinting on Tor v3 Onion Services," accepted to The 35th International Conference on Computer Communications and Networks (ICCCN 2026), Honolulu, Hawaii, USA, July 2026, Acceptance rate: 42%
- Joseph Harvey and **Donghoon Kim** "Distributed Secret Protection in Cloud Storage: A Threshold-Based Approach for Nextcloud," The 24th IEEE/ACIS International Conference on Software Engineering Research, Management and Applications (SERA 2026), Towson, Maryland, USA, May 2026
- Sooin Kim, Kyungtae Kim, Seonghyun Min, Wongyum Kim, Doosung Hwang, and **Donghoon Kim** "Enhancing deephashing with graph filters and autoencoder-based embeddings," PeerJ Computer Science Journal, PeerJ Inc., March 2026
- Aditya A. Krishnan, **Donghoon Kim**, and Hokeun Kim "ACT: Automated CPS Testing for Open-Source Robotic Platforms," accepted to the 7th ACM/IEEE International Conference on Automation of Software Test (AST 2026), Rio de Janeiro, Brazil, on April 13-14, 2026 (co-located with ICSE 2026)
- Yeojin Jung, Namkyeong Kim, and **Donghoon Kim** "Improving Antimicrobial Resistance (AMR) Phenotype Prediction for Unseen Bacteria through Data Augmentation and Machine Learning," The 16th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2025) companion (ParBio Workshop 2025), Philadelphia, PA, October 2025
- Kyungtae Kim, Caiden Chadwick, Doosung Hwang, and **Donghoon Kim** "Rapid Real-Time Android Malware Detection Using Opcode Analysis: A Proof-of-Concept Framework," The 13th IEEE International Conference on Intelligent Mobile Computing 2025 (IMC 2025), 2025

Professional Service (selected)

- NSF PDaSP Track 3 Panel Reviewer (Jan 2025).
- Session Chair, 16th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2025), Oct 2025.
- Reviewer for IEEE and ACM conferences and journals.

Student Mentoring (selected)

- Supervised undergraduate and graduate researchers in CPS security, Tor traffic analysis, Android malware detection, and ML for AMR phenotype prediction (multiple students, 2018–present).

Teaching (selected)

Network and Internet Security (Spring 2026); Data Security (Fall 2025); Software Security (Spring 2025); Computer Networks (recurring); UNIX Systems Programming (recurring).