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JIA RAO
Computer Science and Engineering Assistant Professor

THE UNIVERSITY OF TEXAS AT ARLINGTON • COLLEGE OF ENGINEERING
REDESIGNING ABSTRACTIONS FOR MORE EFFICIENT SYSTEMS

Jia Rao, an assistant professor in the Computer Science and Engineering Department at The University of Texas at Arlington, has been awarded a four-year, $498,000 NSF CAREER grant to redesign abstractions in virtualized systems to improve efficiency.

Abstractions are used to hide capacity in computer systems by removing less important details to attend to other, more pertinent ones. One type of abstraction—virtualization—is a key component of cloud computing and has changed how computer systems use resources by allowing multiple virtual computer architectures and systems to run off of a single physical machine. However, performance, cost-effectiveness and predictability issues are keeping virtualization out of domains such as scientific computing and big-data analytics.

“The problem with existing abstractions in virtual systems is that, despite the benefits to cloud computing, abstractions incur a lot of inefficiency and unpredictability to cloud users,” Rao said. “Our intention is to improve resource management in any kind of virtual system to enable elastic, effective and efficient use of those resources.”

Read more at uta.edu/news/releases/2019/02/Rao-NSF-CAREER-abstractions.php