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**Calling all researchers! Exciting security, software engineering, and AI opportunities.**

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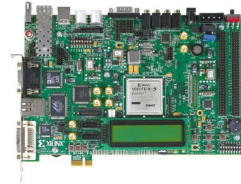
For the Fall 2022 semester, **Professor Kevin Leach** will be recruiting PhD students, postdoctoral scholars, and undergraduate researchers to join his lab. Professor Leach conducts research in systems security, software engineering, and artificial intelligence.

Professor Kevin Leach is a cross-disciplinary researcher, combining the areas of systems security, software engineering, and artificial intelligence. He is particularly focused on designing dependable systems that operate correctly despite being compromised by sophisticated adversaries. He has published over 30 refereed articles, 3 of which have received awards, at multiple top conferences including ICSE, FSE, IEEE S&P, NDSS, DSN, and EMNLP. Previously, he served as a Research Scientist and Lecturer at the University of Michigan from 2017 to 2021. He earned the PhD from the University of Virginia in 2016, where he received the Louis T Rader Outstanding Research Award.

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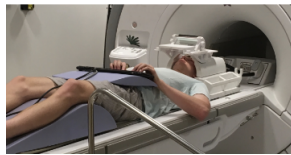
**Systems Security.** Love operating systems? hacking? low-level assembly?

Through a deep understanding of operating systems and CPU hardware, we develop cutting-edge techniques that enable correct execution of critical software *even when an adversary has already compromised the underlying system*. State-of-the-art techniques fail to analyze or detect advanced malicious software — can we change the security arms race?



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**Software Engineering.** Why do security defects get created by developers?



We conduct *human studies* to examine how people approach software engineering problems at the neurological level. By understanding regions of the brain entailed by certain tasks, we can better design automated tools and training materials to improve human performance. For example, what differences in the brain exist between a dye-in-the-wool hacker compared to a standard developer? Can we understand how developers might accidentally create critical security vulnerabilities?

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**Artificial Intelligence.** How do we build robust AI systems?

Self-driving cars, virtual assistants, and autonomous flying vehicles all depend on state-of-the-art data-driven AI models. But these critical software models are often trained with *unrepresentative data* that do not reflect indicate samples encountered in the wild. This weakness in data can lead to model failure or inadequacy in deployment. How do we detect and improve poor datasets?



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I am seeking motivated students interested in pursuing a doctoral degree, postdoctoral training, or visiting scholars. If you are interested in working with me, **please send me your CV and a description of your research interests to me via email (kevin.leach@vanderbilt.edu).**

*The deadline to apply for the PhD at Vanderbilt is **January 15, 2022** to start during the Fall 2022 semester.*

Please apply via <https://gradschool.vanderbilt.edu/admissions/application/index.php>.

### **About Vanderbilt and Nashville, Tennessee**

- Vanderbilt University is a renowned private R1 research university ranked 14th in the United States among national universities according to US News & World Report. The beautiful campus, which is located in rapidly-growing Nashville, Tennessee, is designated as a national arboretum.
- Vanderbilt launched the Destination Vanderbilt Initiative in 2020, a \$100 million university investment to support growing multiple research domains, including Computer Science. The Computer Science department will recruit 20 new faculty members in the next few years.
- Nashville, Tennessee has become one of the most popular cities to move to. From Amazon to Oracle, large tech companies are opening campuses and recruiting local talent from Nashville, also known as “Music City.”
- Nashville International Airport is located roughly 15 minutes from the Vanderbilt campus.
- Nashville is located near outdoor recreational areas, such as the Great Smoky Mountains national park.