David Shriver

CONTACT INFORMATION

Computer Science Department
University of Virginia
Charlottesville, VA

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RESEARCH INTERESTS

My research interests lie in the intersection of software engineering and artificial intelligence, especially in the development of program analysis techniques for machine learning systems.

EDUCATION

University of Virginia, Charlottesville, Virginia USA

Ph.D. Student, Computer Science

- Advisors: Sebastian Elbaum and Matt Dwyer

University of Nebraska-Lincoln, Lincoln, Nebraska USA

M.S., Computer Science, May 2018

- Thesis: "Assessing the Quality and Stability of Recommender Systems"
- Advisor: Sebastian Elbaum

B.S., Computer Engineering, May 2016

POSITIONS HELD

Research Assistant, August 2018 - Present
Department of Computer Science, University of Virginia

Research Assistant, March 2014 - July 2018
Department of Computer Science and Engineering, University of Nebraska-Lincoln

PUBLICATIONS

Conference Publications

Dong Xu, David Shriver, Matthew B. Dwyer, Sebastian Elbaum. 2020. Systematic Generation of Diverse Benchmarks for DNN Verification. In Computer Aided Verification - 32nd International Conference, CAV 2020, Los Angeles, CA, USA, July 21-24, 2020, Proceedings, Part I. 97-121. https://doi.org/10.1007/978-3-030-53288-8_5

David Shriver, Sebastian Elbaum, Matthew B. Dwyer, and David S. Rosenblum. 2019. Evaluating Recommender System Stability with Influence-Guided Fuzzing. In Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI '19). pp 4934-4942. DOI: https://doi.org/10.1609/aaai.v33i01.33014934

David Shriver. 2018. Poster: Toward the development of richer properties for recommender systems. In Proceedings of the 40th International Conference on Software Engineering: Companion Proceedings (ICSE '18). pp 173-174. DOI: https://doi.org/10.1145/3183440.3195082

David Shriver, Sebastian Elbaum, and Kathryn T. Stolee. 2017. At the end of synthesis: narrowing program candidates. In Proceedings of the 39th International Conference on Software Engineering: New Ideas and Emerging Results Track (ICSE-NIER '17). pp 19-22. DOI: https://doi.org/10.1109/ICSE-NIER.2017.7

Upcoming

David Shriver, Sebastian Elbaum, Matthew B. Dwyer. 2021. Reducing DNN Properties to Enable Falsification with Adversarial Attacks. To Appear in ICSE 2021.

Software	DNNV. A Framework for Deep Neural Network Verification. DNNV standardizes the network and property input formats to enable multiple verification tools to run on a single network and property. This facilitates both verifier comparison and artifact re-use. `https://github.com/dlshriver/DNNV`
	DNNF. Enables the application of falsification methods such as adversarial attacks to the checking of general DNN safety properties. DNNF leverages these techniques by employing reductions to automatically transform correctness problems into equivalent sets of adversarial robustness problems. `https://github.com/dlshriver/DNNF`
Service	Co-reviewer ISSTA 2021
	Co-reviewer ICSE 2020
Honors and Awards	University of Nebraska-Lincoln: graduated with Highest Distinction, May 2016
	UNL CSE Department: Computer Engineering Outstanding Undergraduate Senior, 2016
Memberships	AAAI, ACM, IEEE