Jaganmohan Chandrasekaran

Postdoctoral Associate – AI Assurance, Virginia Tech

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Education

Ph.D. in Computer Science 2015–2021
The University of Texas at Arlington Arlington, USA

- Advisor: Prof. Jeff Lei
- Dissertation: Testing Artificial Intelligence-Based Software Systems

M.S. in Computer Science 2013–2015
The University of Texas at Arlington Arlington, USA

- Advisor: Prof. Jeff Lei
- Thesis: Evaluating the effectiveness of BEN in localizing different types of software fault

B.Tech in Information Technology 2004–2008
Anna University Chennai, India

Research Interests

Software Engineering for AI-enabled software systems (SE4AI) – Testing and Debugging of Machine Learning (ML) models – AI Assurance – Explainable, Reliable and Trustworthy AI.

Experience

Postdoctoral Associate - AI Oct 2021–Current
Commonwealth Cyber Initiative (CCI), Virginia Tech Arlington, VA

Research Associate Oct 2021
The University of Texas at Arlington Arlington, TX

Summer Dissertation Fellow Summer 2021
The University of Texas at Arlington Arlington, TX

STEM Graduate Research Assistant Fall 2020–Spring 2021
The University of Texas at Arlington Arlington, TX

STEM Graduate Teaching Assistant Fall 2015–Summer 2020
The University of Texas at Arlington Arlington, TX

Graduate Teaching Assistant Fall 2014–Spring 2015
The University of Texas at Arlington Arlington, TX

Analyst Programmer 2009–2012
Syntel Consulting Inc India/USA

Publications

1. Chelsea Wang, Jaganmohan Chandrasekaran, Flora Haberkorn, Yan Don, Munisamy Gopinath, and Feras Batarseh. ***DeepFarm: AI-Driven Management of Farm Production using Explainable Causality***. (Accepted at STC, 2022)

2. Sunny Shree, Jaganmohan Chandrasekaran, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***DeltaExplainer: A Software Debugging Approach to Generating Counterfactual Explanations***. In 2022 IEEE International Conference On Artificial Intelligence Testing (AITest) (pp. 103-110). IEEE

3. Ankita Ramjibhai Patel, Jaganmohan Chandrasekaran, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***A Combinatorial Approach to Fairness Testing of Machine Learning Models***. In 2022 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW) (pp. 94-101). IEEE

4. Jaganmohan Chandrasekaran, Ankita Ramjibhai Patel, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***Evaluation of T-Way Testing of DNNs in Autonomous Driving Systems***. In 2021 IEEE International Conference On Artificial Intelligence Testing (AITest), (pp. 17-18). IEEE.

5. Jaganmohan Chandrasekaran, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***A Combinatorial Approach to Explaining Image Classifiers***. In 2021 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW), IEEE.

6. Jaganmohan Chandrasekaran, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***A Combinatorial Approach to Testing Deep Neural Network-based Autonomous Driving Systems***. In 2021 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW), IEEE.

7. Jaganmohan Chandrasekaran, Haudong Feng, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***Effectiveness of volumetric dataset reduction in testing machine learning algorithms***. In 2020 IEEE International Conference On Artificial Intelligence Testing (AITest) (pp. 133-140), IEEE.

8. Haudong Feng, Jaganmohan Chandrasekaran, Yu Lei, Raghu N.Kacker and D. Richard Kuhn. ***A Method-Level Test Generation Framework for Debugging Big Data Applications*** . In 2018 IEEE International Conference on Big Data (Big Data), IEEE.

9. Jaganmohan Chandrasekaran, Haudong Feng, Yu Lei, D. Richard Kuhn and Raghu N.Kacker . ***Applying Combinatorial Testing to Data Mining Algorithms***. In 2017 IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW). IEEE.

10. Jaganmohan Chandrasekaran, Laleh Sh Ghandehari, Yu Lei, Raghu Kacker, and D. Richard Kuhn. ***Evaluating the effectiveness of BEN in localizing different types of software fault***. In 2016 IEEE Ninth International Conference on Software Testing, Verification and Validation Workshops (ICSTW), IEEE.

11. Laleh Sh Ghandehari, Jaganmohan Chandrasekaran, Yu Lei, Raghu Kacker, and D. Richard Kuhn. ***BEN: A combinatorial testing-based fault localization tool.*** In 2015 IEEE Ninth International Conference on Software Testing, Verification and Validation Workshops (ICSTW), IEEE.

Dissertation/Thesis

1. Jaganmohan Chandrasekaran. ***Testing Artificial Intelligence-based software systems***. Dissertation & Theses University of Texas - Arlington; ProQuest Dissertation & Theses Global. (Dissertation)

2. Jaganmohan Chandrasekaran. ***Evaluating the effectiveness of BEN in localizing different types of software fault***. Dissertation & Theses University of Texas - Arlington; ProQuest Dissertation & Theses Global. (Thesis)

Book Chapters

1. *An Introduction to AI Assurance*. Feras A. Batarseh, Jaganmohan Chandrasekaran, Laura Freeman (In Press)
   Book: AI Assurance

Posters

1. Edrik Aguilera, Sunny Shree, Jaganmohan Chandrasekaran, and Yu Lei. ***A Software Fault Localization approach to Explainable Artificial Intelligence***, UTA Innovation Day, April 2021

2. Feras A.Batarseh, Jaganmohan Chandrasekaran, Yan Dong, Gopinath Munisamy, and Susan E. Duncan. ***Measuring the Causal Effects of Outliers in Agricultural Supply Chains Using AI***, Envisioning 2050 in the Southeast: AI-Driven Innovations in Agriculture, Auburn University, 2022

Tutorials

1. Jaganmohan Chandrasekaran, Feras A. Batarseh, Laura Freeman, Raghu N.Kacker and M.S.Raunak and D. Richard Kuhn. ***Enabling AI Adoption through Assurance***. In 2022 The International FLAIRS Conference, May 2022.

Talks

1. *Enabling AI adoption through Assurance*. The International FLAIRS Conference, 2022

2. *Towards Building High Quality AI-Based Systems: An exploration between Software Engineering and AI*, Virginia Tech, 2021

3. *Evaluation of T-Way Testing of DNNs in Autonomous Driving Systems*. IEEE International Conference on Artificial Intelligence Testing(AITest), 2021 (Virtual)

4. *A Combinatorial Approach to Explaining Image Classifiers*. IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW), 2021 (Virtual)

5. *A Combinatorial Approach to Testing Deep Neural Network-based Autonomous Driving Systems*. IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW), 2021 (Virtual)

6. *Effectiveness of dataset reduction in testing machine learning algorithms*. IEEE International Conference on Artificial Intelligence Testing(AITest), 2020 (Virtual)

7. *Evaluating the Effectiveness of BEN in Localizing Different Types of Software Fault*. IEEE International Conference on Software Testing, Verification and Validation Workshops (ICSTW), Chicago, USA, 2016

Service

- **Program Committee Member:** 1st IEEE International Workshop on Assured Autonomy, Artificial Intelligence and Machine Learning (2022)
- **Program Committee Member:** 4th IEEE International Conference on Artificial Intelligence Testing (2022)
- **Auxiliary Reviewer:** 16th International Conference on Software Technologies (2021)
- **Auxiliary Reviewer:** 15th International Conference on Software Technologies (2020)
- **Sub-Reviewer:** 35th IEEE/ACM International Conference on Automated Software Engineering (2020)

Teaching

- **CyberCamp Instructor** at Commonwealth Cyber Initiative (CCI) Summer 2022
  AI Instructor
- **Guest Lecturer** at The University of Texas at Arlington Summer 2017, 2018, 2019
  Software Testing (CSE 4321/ CSE 5321)

- **STEM Graduate Teaching Assistant** at The University of Texas at Arlington — Fall 2015–Summer 2020
  Object Oriented Software Engineering (CSE 3310)
  Software Design Patterns (CSE 4361)
  Software Testing (CSE 4321/CSE 5321)
  Special Topics in Advanced Software Engineering - Test Automation (CSE 6329.001)
- **Graduate Teaching Assistant** at The University of Texas at Arlington — Fall 2014–Spring 2015
  Software Engineering II (CSE 5325)
  Software Team Project II (CSE 5328)

Students Mentoring

- Md Nazmul Kabir Sikder, Ph.D. student, Virginia Tech — 2022–Current
- Chelsea Wang, Ph.D. student, Virginia Tech — 2022–Current
- Flora Haberkorn, M.S. student, Virginia Tech — 2022–Current
- Yan Dong, M.S. student, Virginia Tech — 2022
- Weiting Li, M.S. student, Virginia Tech — 2022
- Christian Teeples (Honors Project), UT Arlington — 2020
- Tiffany Isabel Frias (Honors Project), UT Arlington — 2020
- Edrik Aguilera (ReU Project), UT Arlington — 2020–2021

Scholarships and Awards

- Summer Dissertation Fellow (Award Amount - $ 7,000) — 2021
- Research Experience for Undergraduate Grant (Award Amount - $ 2,000) — 2021
- Dean's Travel Grant (Did not travel due to COVID-19 lockdown) — 2020
- STEM Doctoral Fellowship — 2015–2021
- Finalist - Outstanding Graduate Teaching Assistant Award — 2018
- Dean's Travel Grant — 2016

References

Provided on Request

Last updated October 26, 2022.