Rohit Dureja dureja@iastate.edu

Education

Ph.D. Computer Science, Iowa State University, Ames, IA, USA — 2016– ongoing

M.S.E. Embedded Systems, University of Pennsylvania, Philadelphia, PA, USA — 2013–2015

B.E. Instrumentation and Control, University of Delhi, New Delhi, India — 2009–2013

Experience

Research Assistant, Iowa State University — Aug 2015 – present
Symbolic Model Checking of Large Design Spaces
Mentor: Kristin Yvonne Rozier

Research Intern, Fondazione Bruno Kessler, Trento, Italy — May 2015 – Aug 2015
Formal Verification of NextGen Air Traffic Controller
Mentor: Alessandro Cimatti

Embedded Systems Programmer, University of Pennsylvania — Jan 2014 – Apr 2015
Wireless and Invasive Brain-Computer Interfaces
Mentor: Jan Van der Spiegel

Undergraduate Intern, Texas Instruments, New Delhi, India — Dec 2011 – Apr 2013
ARM-based Microcontroller Development Platforms
Mentor: Dhananjay Gadre

Publications

Peer-Reviewed Conferences

C1 Rohit Dureja and Kristin Y. Rozier. FuseIC3: An Algorithm for Checking Large Design Spaces. In *Proceedings of Formal Methods in Computer-Aided Design (FMCAD)*, Vienna, Austria, October 2017. IEEE/ACM. Talk video: `https://goo.gl/Gs92G2`

Workshops and Posters

P2 Rohit Dureja and Kristin Y. Rozier. From One to Many: Checking A Set of Models. In *Formal Methods in Computer-Aided Design (FMCAD) Student Forum*, Austria, Vienna, October 2017

W3 Rohit Dureja, Eric W. D. Rozier, and Kristin Y. Rozier. A Case Study in Safety, Security, and Availability of Wireless-Enabled Aircraft Communication Networks. In *Proceedings of AIAA Aviation Technology, Integration, and Operations Conference (AVIATION)*, Denver, Colorado, USA, June 2017. AIAA

P4 Rohit Dureja and Kristin Y. Rozier. Comparative Safety Analysis of Wireless Communication Networks in Avionics. In *Formal Methods in Computer-Aided Design (FMCAD) Student Forum*, Mountain View, California, USA, October 2016

Books and Book Chapters

B5 Dhananjay V. Gadre, Rohit Dureja, and Shanjit S. Jajmann. *Getting Started with Stellaris ARM Cortex-M Embedded Processors*. Universities Press, 2013

Under Submission

C6 Rohit Dureja and Kristin Y. Rozier. More Scalable LTL Model Checking via Discovering Design-Space Dependencies (D^3)

Technical Presentations

- "Scalable Design Space Analysis for Future Traffic Management." CPS Challenges for Unmanned and Autonomous Systems Workshop, Washington, DC, November 14, 2017.
- "Making Undecidable Problems Decidable in Practice." Software Engineering Seminar, Department of Computer Science, Iowa State University, Ames, IA, October 12, 2017.

Selected Course Projects

1. *UAV Security Exploit.* Designed a one-click man-in-the-middle (MITM) attack with ARP poisoning to acquire unauthenticated control of a drone.
2. *Modeling and Verification of a Pacemaker.* Modeled a pacemaker using UPPAAL and synthesized code to run on a 32-bit ARM microcontroller.

3. *Veterinary Patient Records.* Gathered requirements for a patient record system; culminated in a complete requirements specification document, and a prototype.
4. *Network Sniffer.* Designed a powerful network packet sniffer capable of collecting socket-connection information and data, SMTP messages and profile connections.
5. *Viral Marketing.* Experimentally evaluated the correlation between social network and spread of influence models to maximize information spread.
6. *US Presidential Elections.* Designed a predictor model to predict popular vote and electoral college winner of 2016 US presidential elections.

Skills

Languages & Software: C/C++, Python, Haskell, LaTeX, Matlab.
Technologies: Git, CMake, HTML/CSS, SQL, MongoDB.

Service

Reviewer: TACAS 2018, TACAS 2017, NFM 2016

External Training

1. Marktoberdorf School on Dependable Software Systems Engineering, 2016.
2. SRI International Sixth Summer School on Formal Techniques, 2016
3. RiSE & LogiCS Spring School on Logic and Verification, 2016

Awards and Honors

- Travel grant to Formal Methods in Computer Aided Design (FMCAD) Conference 2016, 2017.
- Travel grant and registration waiver to Marktoberdorf School.
- Microsoft Research travel grant to Verification Mentoring Workshop (VMW) 2016 and Computer Aided Verification (CAV) Conference 2016.
- Carnegie Mellon University travel grant to CPS V&V Workshop 2016.
- National Science Foundation travel grant to CPS Week 2016.
- *Best Design* and *Top 10 hack* at HackPrinceton 2013.
- University of Delhi academic scholarship, 2009-2013.