

SANTHOSH PRABHU MURALEEDHARA PRABHU

PRESENT ADDRESS

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PERMANENT ADDRESS

VRINDAVAN
Vayalikkada
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Trivandrum, Kerala
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CAREER OBJECTIVE

To take up technically challenging assignments throughout my career contribute to the overall advancement of the field of Computer Science.

AREAS OF INTEREST

Formal Methods, Verification, Concurrent and Distributed Systems

EDUCATION

Indian Institute of Technology Kharagpur
M.Tech - Computer Science and Engineering
Completed: May 2012
C.G.P.A: 9.96/10.0

Honors/Awards

- Institute Medal for First Rank in Computer Science
- K.K Parhi Award for best M.Tech Thesis in Circuit Branches (Electrical, Electronics, Computer Science Engineering)
- M.Tech project adjudged best in Masters category at “Innovative Projects Awards 2012” by Indian National Academy of Engineering

TKMCE, Kollam(University of Kerala)
B.Tech - Computer Science and Engineering
Completed: May 2010
GPA: 8.32/10
Percentage of Marks: 83.2

Honors/Awards

- Second rank in the institute in Computer Science
- PTA Medal for Academic Achievement
- Adjudged the “Best Outgoing Student of Computer Science”

PUBLICATIONS

Model Checking Controllers with Predicate Inputs. Santhosh Prabhu M and Pallab Dasgupta. Accepted for publication in IEEE International Conference on VLSI Design (VLSID), 2013.

Debugging Assertion Failures in Software Controllers using a Reference Model. Kajori Banerjee, Santhosh Prabhu M and Pallab Dasgupta. Accepted for publication in India Software Engineering Conference, 2013.

Under Revision

Self Stabilization and Fault Containment in Distributed Knot Detection. Santhosh Prabhu M. Under revision with the International Journal of Foundations of Computer Science.

Reliability Guarantees in Automata Based Scheduling for Embedded Control Software. Santhosh Prabhu M, Aritra Hazra and Pallab Dasgupta. Under revision with IEEE Embedded Systems Letters.

Under Review

Formal Verification of Transition Systems with Predicate Inputs. Santhosh Prabhu M, Debjit Pal and Pallab Dasgupta. Submitted to IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems.

EXPERIENCE

Research Consultant in the FormalV group at IIT Kharagpur (May 2012-present)

Research Intern with RCS Verification and Validation Group, GM India Science Labs

Reviewer at *Automated Technology for Verification and Analysis 2012*

SKILLS

Programming Languages: C/C++, Java, Python, Lisp(Novice), Prolog(Novice)

Modeling/Simulation Tools: Simulink/Stateflow(Novice)

HDL: Verilog

Model Checking Tools: NuSMV, SPIN

BDD Packages: CUDD

SAT Solvers: ZChaff

SMT Solvers: Yices

Operating Systems: Linux, Windows

PROJECTS

Automata based dynamic scheduling in an adversarial environment

Objective: To develop generating automata for dynamically generating safe schedules of control actions by a controller in environments where message loss, actuation failure etc. may occur.

Result:

Developed a game theoretic formulation of the problem, and described the construction of the generating automaton from the game tree.

Mining assume properties for verification

Objective: To develop data mining techniques for mining properties from simulation traces of hybrid plants. These properties are then used as primitive plant models for *plant-in-the-loop* verification of controllers.

Result:

Developed an algorithm by building on the decision tree mining technique. Implemented the miner. Project currently in the Knowledge Transfer stage to the industry.

Formal Verification of Abstract Digital Controllers(M.Tech 2nd year)

Objective: To develop model checking techniques for verifying digital controllers for hybrid plant models.

Result:

Proposed 2 techniques - one automata-theoretic and one symbolic. Proved the correctness of both approaches. Implemented a toolkit for verifying industrial controllers.

Multi-document summarization (B.Tech 8th semester)

Objective: To develop a summarization system that would take multiple documents pertaining to a common topic and produce a short summary.

Result:

System successfully implemented. Challenges like data redundancy between documents, sentence ordering etc. were handled.

REFERENCES

Prof. Pallab Dasgupta
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