SHRAWAN KUMAR

EDUCATION   - Ph.D. in Computer Sciences from IIT, Bombay in July, 2019

B.Tech. in Computer Sciences from IIT, Kanpur in June, 1984.

EXPERIENCE SUMMARY

- Total industry experience of more than 37 years
- First 11 years consisted of:
  - Design and Development of compilers and system utilities
  - Developmenet of customized business systems
- Working in TCS as research scientist at TRDDC since last 26 years

Major areas of experience

- System program development (OS drivers, Utilities)
- Compiler development, Design and development of Platform Migration tools
- Program analysis techniques
- Use of program analysis and formal methods in solving real life problems like checking of programming standards adherence and property verification

AREAS OF INTEREST

- System programming, data structures and algorithms
- Compiler theory
- Program analysis and verification

CURRENT AREA OF WORK

Program Analysis,
Verification of domain/platform specific propertis
Program synthesis

MAJOR TOOLS AND PROJECTS

1. A property checking tool for large industry code
2. MISRA C standards checking tool
3. A data flow analsysi framework
4. Network model to relation model database application migration tool
5. A compiler for COBOL language for UNIX miniframe

SELECTED PUBLICATIONS

1. Shrawan Kumar, Amitabha Sanyal, R. Venkatesh, and Punit Shah. Property Checking Array Programs Using Loop Shrinking. In Dirk Beyer and Marieke Huisman, editors, *Tools and Algorithms for the Construction and Analysis of Systems*, pages 213–231, Cham, 2018. Springer International Publishing.
2. Priyanka Darke, Sumanth Prabhu, Bharti Chimdyalwar, Avriti Chauhan, Shrawan Kumar, Animesh Basakchowdhury, R Venkatesh, Advaita Datar, and Raveendra Kumar Medicherla. VeriAbs: Verification by Abstraction and Test Generation. In *International Conference on Tools and Algorithms for the Construction and Analysis of Systems*, pages 457–462. Springer, 2018.
3. Shrawan Kumar, Amitabha Sanyal, and Uday P. Khedker. Value Slice: A New Slicing Concept for Scalable Property Checking. In Christel Baier and Cesare Tinelli, editors, *Tools and Algorithms for the Construction and Analysis of Systems*, pages 101–115, Berlin, Heidelberg, 2015. Springer Berlin Heidelberg.
4. Shrawan Kumar, Bharti Chimdyalwar and Ulka Shrotri. Precise Range Analysis on Large Industry Code. In *Proceedings of ESEC/FSE*, 2013.
5. Bharti Chimdyalwar and Shrawan Kumar. Effective False Positive Filtering for Evolving Software. In *Proceedings of ISEC*, 2011.