

# Umang Mathur

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- EDUCATION**
- University of Illinois at Urbana-Champaign**, Urbana-Champaign, IL, USA  
Ph.D., Department of Computer Science Aug 2015 – Present  
Cumulative GPA of 3.96/4.0
- Indian Institute of Technology - Bombay**, Mumbai, India  
B.Tech. (Hons.), Department of Computer Science and Engineering Jul 2010 – Aug 2014  
Cumulative GPA of 9.18/10.0  
Minor degree in Physics
- RESEARCH INTERESTS** Formal Methods, Programming Languages, Verification, Concurrency, Program Synthesis, Automata Theory, Logic, Cyber-Physical Systems, Software Engineering, Software Testing
- PUBLICATIONS**
- Dynamic Race Prediction in Linear Time**  
*Dileep Kini, Umang Mathur, Mahesh Viswanathan*  
Proceedings of the 38<sup>th</sup> ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI 2017
- Look for the Proof to Find the Program: Decorated-Component-Based Program Synthesis**  
*Adria Gascon, Ashish Tiwari, Brent Carmer, Umang Mathur*  
Proceedings of the 29<sup>th</sup> International Conference on Computer Aided Verification, CAV 2017
- Exact Quantitative Model Checking Through Rational Search**  
*Matthew S. Bauer, Umang Mathur, Rohit Chadha, A. Prasad Sistla, Mahesh Viswanathan*  
Proceedings of the 17<sup>th</sup> International Conference on Formal Methods in Computer-Aided Design, FMCAD 2017
- Weak Singular Hybrid Automata**  
*Shankara Narayanan Krishna, Umang Mathur, Ashutosh Trivedi*  
Proceedings of 12<sup>th</sup> International Conference on Formal Modeling and Analysis of Timed Systems, FORMATS 2014
- Computing Information Flow Using Symbolic Model-Checking**  
*Rohit Chadha, Umang Mathur, Stefan Schwoon*  
Proceedings of IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2014
- MANUSCRIPTS UNDER SUBMISSION**
- Decidable Fragment of Second Order Logic With Applications to Program Synthesis**  
*P. Madhusudan, Umang Mathur, Shambwaditya Saha, Mahesh Viswanathan*
- Data Race Detection on Compressed Traces**  
*Dileep Kini, Umang Mathur, Mahesh Viswanathan*
- WORK EXPERIENCE**
- Senior Quantitative Researcher, WorldQuant Research, India** Jul 2014 – Jul 2015  
Responsible for conceptualizing and implementing quantitative strategies resulting in excess returns (*alpha*). Concentrated mainly on seeking low turnover quality *alphas* for trading in the currency market based on canonical and alternative forex evaluation models.
- INTERNSHIPS**
- Research Internship, SRI International** May 2016 – Aug 2016  
*Efficient Program Synthesis Via Proof Search*

	<b>Research Internship, LaBRI, France</b>	May 2013 – Jul 2013
	<i>Non-Zeno strategies for Timed Games</i>	
	<b>Research Internship, LSV, ENS Cachan France</b>	May 2012 – Jul 2013
	<i>Verification of Probabilistic Recursive Programs</i>	
AWARDS	<p>Secured 28<sup>th</sup> rank amongst more than 450000 students in IIT-JEE 2010</p> <p>Awarded Silver Medal at the 5<sup>th</sup> <b>International Junior Science Olympiad</b> held in Republic of Korea in 2008</p> <p>Represented India at the 11<sup>th</sup> <b>Asian Physics Olympiad</b> held in Taipei, Taiwan in 2010</p> <p><b>Travel grants</b> for attending PLDI conference (2017), CAV conference (2016), Verified Trustworthy Software Systems meetings, organized by The Royal Society of London (2016), and Summer School on Formal Techniques, organized by SRI International (2016, 2017).</p> <p>Awarded Gold Medals in selection camps for the <b>International Physics and Chemistry Olympiads</b>, 2010</p> <p>Awarded the prestigious <b>KVPY</b> fellowship and <b>NTSE</b> scholarship by the Government of India, <b>SSTSE</b> scholarship the Government of Rajasthan in 2008</p> <p>Received <b>Mamraj Agarwal Rashtriya Puraskar</b> for academic excellence by the Governor of Rajasthan, 2008</p> <p>Selected amongst the Top 1% students across the nation who appeared for the National Standard Examination in Astronomy in the years 2007, 2008, 2009 and 2010</p> <p>Secured 2<sup>nd</sup> rank in the national Map Quiz conducted by the Indian National Cartographic Association, 2007</p> <p>Awarded the Narotam Sekhsaria Foundation Scholarship for Undergraduate studies in Engineering in 2010</p>	
SERVICE	<p>Served on the repeatability evaluation committee of HSCC 2017</p> <p>Reviewed articles for peer-reviewed conferences like CAV, ICALP, HSCC, FORTE, FSTTCS, and FORMATS.</p>	
TOOLS	<p><b>RAPID</b> – <a href="https://publish.illinois.edu/race-prediction/">https://publish.illinois.edu/race-prediction/</a> Tool for detecting Data Races in Java Programs</p> <p><b>RATIONALSEARCH</b> – <a href="https://publish.illinois.edu/rationalmodelchecker/">https://publish.illinois.edu/rationalmodelchecker/</a> Tool for Exact Quantitative Model Checking of probabilistic systems</p> <p><b>MOPEDQLEAK</b> – <a href="https://sites.google.com/site/mopedqleak/">https://sites.google.com/site/mopedqleak/</a> Tool for Computing Information Leakage in Probabilistic Recursive Programs</p>	
TECHNICAL SKILLS	<p><b>Programming Languages</b> C, C++, Java, Python, Haskell, Perl, OcaML</p> <p><b>Miscellaneous</b> MySQL, HTML, CSS, L<sup>A</sup>T<sub>E</sub>X Scheme, Prolog</p>	