

# SREEJA S NAIR

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## EDUCATIONAL DETAILS

- PhD student with DELYS at Laboratoire d'Informatique de Paris 6 (LIP6), INRIA, CNRS, Sorbonne Université from April 2018.
- Master of Technology from National Institute of Technology Calicut, India with Gold medal (CGPA 9.15/10) in 2012 - 2014.
- Bachelor of Technology from NSS College of Engineering, India (affiliated to University of Calicut) with First Class (71.5%) in 2004 - 2008

## AREAS OF INTEREST

Software Engineering, Distributed Systems, Software Verification, Programming Languages, Program Analysis, Algorithm Development.

## WORK EXPERIENCE

- **PhD student** at LIP6, DELYS team, Paris from April 2018, advised by Marc Shapiro
  - Working on Just-Right Consistency for massive geo-replicated storage
  - Working on optimizing update propagation in distributed systems
- **Research Engineer** at LIP6, REGAL team, Paris from April 2017 to March 2018
  - Evaluated and improved an existing tool for verifying distributed applications using operation based update propagation
  - Conceived a complementary tool for distributed applications using state based update propagation mechanism
- **Associate Scientist** at ABB Corporate Research, India from August 2014 to April 2017
  - Involved in the research efforts on improving productivity of industrial automation engineers using program analysis
    - \* Implemented static code analysis tool for IEC 61131 languages (used for programming PLCs) which detects potential run-time errors, semantic errors and helps in checking conformance to coding guidelines which was piloted with more than 30 real-time projects with corroborated results.
    - \* Designed and implemented code dependency solver which visualizes and detects dependencies between different programs in automation engineering projects which was tested and corroborated with more than 300 real-life issues.
    - \* Extended the program analysis framework for analysing industrial robotic applications and measurement field device programs.

- Mentored a student’s masters thesis on constraint based program analysis.
- Worked on a platform to provide Machine learning as a service.
- **Research Intern** at ABB Corporate Research, India from August 2013 to May 2014
  - Implemented a hybrid data-flow analysis and abstract interpretation based framework to detect potential run-time errors.
- **Technology Analyst** at Infosys Limited, India from September 2008 to July 2012
  - Designed, developed and documented database for a portfolio of applications for British Telecom.
  - Integrated client’s billing system with a Geographical Information System.
  - Developed and maintained tool for workforce optimization.
  - Proposed and implemented a method for automated data validation.

## AWARDS AND HONORS

- Extra Miler award from ABB Corporate Research in 2015 for exceptional collaboration with stakeholders and showing high level of technical leadership.
- Gold Medal for outstanding scholastic performance from National Institute of Technology Calicut, India in 2014

## INVITED TALKS

- “Invariant safety for distributed applications” at the Verification Seminar organised by IRIF, 15th March 2019.

## PUBLICATIONS

- Sreeja S. Nair, Gustavo Petri, Marc Shapiro. “Proving the safety of highly-available distributed objects”, 29th European Symposium on Programming (ESOP), Dublin, Ireland, 2020.
- Sreeja S. Nair, Gustavo Petri, Marc Shapiro. “Invariant Safety for Distributed Applications”, Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC), Dresden, Germany, 2019.
- Sreeja S. Nair, Marc Shapiro, “Improving the “Correct Eventual Consistency” Tool”, Inria Research Report, RR-9191, 2018.
- Avijit Mandal, Devina Mohan, Raoul Jetley, Sreeja S. Nair, Meenakshi D’Souza, “A generic static analysis framework for domain specific languages”, Proceedings of the 23rd IEEE International Conference on Emerging Technologies and Factory Automation (ETFA), Italy, 2018.
- Sreeja S. Nair, “Evaluation of the CEC (Correct Eventual Consistency) Tool”, Inria Research Report, RR-9111, 2017.

- Avijit Mandal, Sreeja S. Nair, Raoul Jetley and Meenakshi D’Souza, “A static analyzer for Industrial robotic applications”, Proceedings of the 28th International Symposium on Software Reliability Engineering (ISSRE), France, 2017.
- Sreeja S. Nair and Raoul Jetley, “Solving Circular Dependencies in Industrial Automation Programs”, Proceedings of *IEEE 14<sup>th</sup> International Conference on Industrial Informatics(INDIN)*, France, 2016.
- Sreeja S. Nair, Raoul Jetley, Anil Nair and Stefan Hauck-Stattelmann, “A Static Code Analysis Tool for Control System Software”, Proceedings of *2015 IEEE 22<sup>nd</sup> International Conference on Software Analysis, Evolution, and Reengineering (SANER)*, Pages 459-463, Montreal, Canada, 2015.