Sourabh Pal
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Research Interest

System Verification, Concurrency, Distributed Systems, Choreographies, Formal Methods, Message Passing Systems, Session Types, Software Analytics or Empirical Software Engineering, AI in Software Engineering, Software Metrics

Research Affiliation

Mar 2023-Till Now	Role: **Post Doctoral Fellow**, OLAS Team, INRIA, France.
Nov 2022-Mar 2026	Role: **Research Scholar**, University of Bologna, Italy.
Oct 2023-Oct 2025	Role: **Research Scholar**, OLAS Team, INRIA, France.
Feb 2025-Aug 2025	Role: **Visiting Research Scholar**, Division of Theoretical Computer Science, Department of Computer Science, KTH Royal Institute of Technology, Stockholm, Sweden.
Mar 2024-Sept 2024	Role: **Visiting Research Scholar**, Directorate of Health, Emilia Romagna Region, Italy.
Sept 2019-Jul 2023	Role: **Junior Researcher**, Innopolis University, Russian Federation.
Aug 2014-Jan 2015	Role: **Research Engineer**, SIEMENS Corporate Research, Bangalore, India.
Oct 2013- Jul 2014	Role: **Research Intern**, SIEMENS Corporate Research, Bangalore, India.

Teaching Affiliation

2023-2026	**Role: Teaching Assistant, University of Bologna, Italy** Course Title: Computational Methods for Bioinformatics (Fall 2023, 2024, 2025) Course Instructors: Prof. Ivan Lanese, and Dr. Matteo Manfredi
2020-2022	**Role: Teaching Assistant, Innopolis University, Russian Federation** Course Title: Computer Networks (Spring 2020, 2021, and 2022) Course Instructors: Prof. Paolo Ciancarini (Spring 2022), and Prof. Rasheed Hussain, and Prof. Artem Burmyakov (Spring 2020 and 2021) Course Title: Philosophy I - (Discrete Math and Logic) (Fall 2021) Course Instructors: Prof. Mirko Farina (For Mathematical Logic), and Prof. Andrey Frolov (For Discrete Mathematics) Course Title: Information Theory (Fall 2020) Course Instructors: Prof. Alberto Sillitti

Education

2022-2026	**Ph.D., Computer Science and Engineering**, University of Bologna, Italy Thesis title: *A Choreographic Approach to Modelling and Analysis of Administrative Procedures in Healthcare Management.* Supervisor: Prof. Ivan Lanese, and Massimo Clo

Education (continued)

2012–2014   **Master of Technology(M.Tech), Software Engineering**, Manipal Institute of Technology, India
Thesis title: *Automated Bug Triage System*.
Supervisor: Prof. Santhosha Rao

2007-2011   **Bachelor of Technology(B.Tech), Computer Science and Engineering**, West Bengal University of Technology, India
Thesis title: *Closure of Functional Dependencies and Database Normalization*.
Supervisor: Prof. Subhas Barman

Academic Achievements

2025   Marco Polo Scholarship for International Mobility, UNIBO, Italy

2022-2025   PNRR Ph.D. Scholarship, UNIBO, Italy

2012–2014   GATE AICTE Scholarship

2011   88.50 percentile in the GATE Post Graduate Entrance Exam

Publication

Journal   **Sourabh Pal**, and Alberto Sillitti. "Cross-project defect prediction: a literature review." IEEE Access 10 (2022): 118697-118717.

Conference   **Sourabh Pal**, Roberto Guanciale, Ivan Lanese, Emilio Tuosto, and Massimo Clo. "Pomsets for Process Management: a Healthcare Case Study", Morocco in ICTAC 2025.

Sourabh Pal, Ivan Lanese, and Massimo Clo. "Choreographic Automata: A Case Study in Healthcare Management." International Conference on Coordination Models and Languages. Cham: Springer Nature Switzerland, 2024.

Sourabh Pal, and Alberto Sillitti. "A classification of software defect prediction models." 2021 International Conference" Nonlinearity, Information and Robotics"(NIR). IEEE, 2021.

Non-Peer-Rreviewed   **Sourabh Pal**. "Generative adversarial network-based cross-project fault prediction." arXiv preprint arXiv:2105.07207 (2021).

Not Published Yet   **Sourabh Pal**. "Deep Learning-based Bug Triage System." Draft Document Link.

Sourabh Pal. "An Analysis of the Evolution of Cross-Project Defect Prediction Models." Draft Document Link.

Projects

Ongoing   SmartCloud: Choreographic Approach for Verification and Automatic Adaptation of Cloud System

Past   Modeling, Analysis, and Efficiency of Administrative Procedures in the Public Administration.

Cross-Project Fault Prediction for Complex Systems like Cyber-Physical Systems.

Projects (continued)

- METRICSPEDIA: A collection and analysis of software metrics.
- Software Analytics: Automated Defect Prediction using Machine Learning.
- AAHAN: Automated Bug Triage System Using Machine Learning.
- Refactoring: Change Impact Analysis.
- Video Processing Using Probability Distribution Function.
- Closure of Functional Dependency and Database.

My Tools

PomCho+ **Purpose**: To verify the Realisability of the Asynchronous and Synchronous Communication Model; **Link**: Latest Release Available HERE.

Corinne **Purpose**: To verify the Correctness of the Synchronous Communication Model; **Link**: Latest Release Version 4 Available HERE.

Talks

2024 Topic: Do we need System Verification? Location: Talk: IEEE Research Flash Talk, Location: bi-rex, Bologna, Italy.

2023 Topic: Modeling, Analysis, and Efficiency of Administrative Procedures in the Public Administration, Summer School: Verification Technology, Systems & Applications, Location: INRIA, Nancy, France.

2021 Topic: A Classification of Software Defect Prediction Models, Conference: Nonlinearity, Information, and Robotics Conference, Location: Innopolis University, Russia.

Memberships

2021-2023 IEEE Student Member.

Skills

Languages English, Bengali, Hindi, Italian, and Russian.

Coding Python, C, C++, Java, Objective C, HTML, C#, and Haskell.

Conference, Training, Workshop, and School

2024 **Workshop:** IEEE Research Flash Talk, Bologna, Italy.

School: Bertinoro International Spring School, Bertinoro, Italy.

2023 **School:** Verification Technology, Systems & Applications, INRIA Nancy, France.

2021 **Conference:** Nonlinearity, Information, and Robotics Conference, Innopolis, Russia.

2020 **Workshop:** Instructional Skill Workshop from, Innopolis University, Innopolis, Russia.

2012 **Workshop:** "ping 2.0.1.1" with the theme "Big Data Analytics", Department of Information and Communication Technology, Manipal Institute of Technology, Manipal and EMC2, Manipal, India.

2010 **Training:** Training at Ardent: Project "Doctor Information System" Using ASP.NET and MySQL database, Kolkata, India.