

Nikhil Kumar Singh

CONTACT INFORMATION

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IIT Kanpur

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GitHub: <https://github.com/ciniks117>

RESEARCH INTERESTS

Formal Verification, Computer-Aided Design, Cyber Physical Systems,
Machine Learning.

EDUCATION

Indian Institute of Technology, Kanpur,
PhD, Computer Science and Engineering, Jan 2020 - Present (9.50/10)
Thesis : Specification Guided Automated Controller Synthesis for CPSs.
Advisor: Dr. Indranil Saha

Indian Institute of Technology, Kanpur,
MS, Computer Science and Engineering, Dec 2019 (9.0/10)
Thesis : Specification guided Automated Debugging of CPS Models.
Advisor: Dr. Indranil Saha

National Institute of Technology, Jamshedpur,
B.Tech(Hons), Computer Science and Engineering, May 2014 (8.70/10)
Project: Intelligent Web Search Engine.
Advisor: Dr. Sanjay Kumar

TECHNICAL ABILITIES

- **Languages:** C, Python, C++, Scala, PHP, MySQL.
- **Machine Learning Frameworks:** Scikit-learn, OpenCV, Keras, Tensorflow.
- **Tools/Fwk :** MATLAB, Simulink/Stateflow, SpaceX, BREACH, S-TALIRO, dReach.

PUBLICATIONS

- **Nikhil Kumar Singh**, Indranil Saha. “*Specification Guided Synthesis of Feedback Controllers.*” ACM SIGBED International Conference on Embedded Software (EMSOFT 2021), ACM/IEEE, virtual conference, October 08-15, 2021.
To be Published in ACM Transactions on Embedded Computing Systems (2021) Code at <https://github.com/ciniks117/SCoSyn>
- **Nikhil Kumar Singh**, Indranil Saha. “*Specification Guided Automated Debugging of CPS Models.*” International Conference on Embedded Software (EMSOFT2020), ACM/IEEE, virtual conference, September 20-25, 2020.
Published in IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (2020) <https://ieeexplore.ieee.org/document/9211574/>.
Code at <https://github.com/ciniks117/BLARS>

WORK EXPERIENCE

Indian Institute of Technology, Kanpur Teaching Assistant
Autonomous Cyber-Physical Systems (CS659A) **Jan’21 - Present**

Indian Institute of Technology, Kanpur Teaching Assistant
Embedded and Cyber-Physical Systems (CS637A) **Sept’20 - Dec’20**

Indian Institute of Technology, Kanpur Teaching Assistant
Formal Methods for Robotics and Automation (CS638A) **Jan’20 - Apr’20**

FMSAFE Project, IIT Kanpur Senior Student Research Associate
Sponsor: MHRD IMPRINT **Jan’18 - Dec’19**
- Developed an Automated Tool **BLARS** for Debugging CPS Models.

OptumSoft, Bangalore Member Of Technical Staff **June’14 - Dec’15**
- Software Development in the domain of Distributed Systems. This involved a high-level TACC Compiler Framework.

- Projects related to development and maintenance of Dashboard Software.
- Working with the build servers.

HPES-IIIT Allahabad, Intern

May'13 - June'13

- Worked on Digital Library using PHP and MySQL.

AWARDS AND CERTIFICATES

- Selected for Prime Minister's Research Fellowship (Dec-2020).
- Nominated by the Department of CSE, IIT Kanpur for Cadence Gold Medal and SIIC Student Innovation Award for MS thesis.
- Won first prize in Data structure & algorithm based event *CODATHON* in OJASS'13.
- Won third prize in Coding based event *CODEMANIA* in Ojass' 13.
- Won second prize in the event *CODESTORM* conducted by the Computer Society of India at NIT-Jamshedpur held in March-2012.
- Won first prize in the event *LET US C* conducted by the Computer Society of India at NIT-Jamshedpur held in April-2011.
- Attended a workshop on CCNA by Ducat in 2012.
- Attended a workshop on Ethical Hacking by Kyrion Digital Electronics in 2011.

EXTRA-CURRICULAR ACTIVITIES

- **Coordinator:** CODATHON @ OJASS'14.