

# RISHABH DAS

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## BIO

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A PhD. student in the Computer Engineering department of the University of Alabama in Huntsville, with research interest in cybersecurity and datamining. Has strong knowledge about the current technologies being used in the industries and is adept at modelling cyber physical systems using software like MATLAB/SIMULINK. Extensive experience in research, teaching and has work experience in the energy sector.

## EDUCATION

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<b>University of Alabama in Huntsville, USA</b> <i>Doctor of Philosophy in Computer Engineering</i>	<b>July 2020</b>
<b>University of Alabama in Huntsville, USA</b> <i>Master of Science in Computer Engineering</i>	<b>Aug 2019</b> GPA-4.0, Awarded Graduate Dean's list
<b>University Institute of Technology, University of Burdwan, India</b> <i>Bachelor of Science in Electrical Engineering</i>	<b>July 2014</b> CGPA-8.39, Awarded 3rd place in the University

## EXPERIENCE

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<b>Graduate Research Assistant</b> <i>University of Alabama in Huntsville</i>	<b>Aug 2015-Present</b> <i>Huntsville, AL</i>
Developed a framework to virtualize industrial control systems using OpenPLC. Worked on creating on-the-edge machine learning algorithms for detecting and preventing intrusion real-time into Programmable Logic Controllers (PLCs).	
<b>Machine learning engineer</b> <i>Positive Altitude llc.</i>	<b>Sept 2017- Dec 2019</b> <i>Huntsville, AL</i>
Advised a group of five android developers. Optimized and improved the performance of a machine learning algorithm used by an android application (LibIt) for detecting animal species.	
<b>Junior Manager</b> <i>Indian Oil Tanking</i>	<b>July 2014-July 2015</b> <i>Mumbai, India</i>
Supervised and maintained the sensor network in an oil terminal and in an international liquid cargo jetty. Learned the standards and safety hazards associated with oil and gas operations.	
<b>Junior Researcher</b> <i>Saha Institute of Nuclear Physics</i>	<b>April 2014-July 2014</b> <i>West Bengal, India</i>
Modeled the external characteristics of sparks in a resistive plate chamber using MATLAB/SIMULINK. This was a research initiative of CERN (European Organization for Nuclear Research) to study the behavior of muon detectors in "A Large Ion Collision Experiment (ALICE)" used in the Large Hadron Collider.	

**Junior Researcher***Electronic Research and Testing Laboratory***April 2013-Aug 2013***West Bengal, India*

Tested instruments and control logic of Siemens. Designed ladder logic and Human Machine Interface (HMI) of industrial control systems like tunnel lighting system, water tank, gas pipeline, etc.

## HONORS AND ACHIEVEMENTS

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**Session Chair***Southeastcon 2019**Huntsville, AL***April 2019****Best Presenter***International Conference on Computer, Electrical Communication Engineering**West Bengal, India***Dec 2017****First place in Embedded Security Challenge***Cyber Security Awareness Week 2017**NYU Tandon, New York***Nov 2017**

## PUBLICATIONS

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**Journal**

- Alves, T., **Das, R.**, Werth, A., Morris, T., Virtualization of SCADA Testbeds for Cybersecurity Research: A Modular Approach, *Computers Security*, Volume 77, Pages 531-546, August, 2018.
- Alves, T., **Das, R.**, Morris, T., Embedding Encryption and Machine Learning Intrusion Prevention Systems on Programmable Logic Controller, *IEEE Embedded Systems Letters*, Volume 10, Issue 3, Pages 99-102, September, 2018.
- **Das, R.**, Dutta, S., Samanta, K. and Sarkar, A., Automation of Tank Level Using PLC and Establishment of HMI by SCADA, *IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE)*, Volume 7, Issue 2, Pages 61-67, July-August, 2013.
- Dutta, S., **Das, R.** and Sarkar, A., Microcontroller Based Data Acquisition System, *International Journal of Engineering and Technology*, July edition 2013.

**Book Chapter**

- **Das, R.**, Morris, T., Modeling a Midstream Oil Terminal for Cybersecurity Risk Evaluation, *Critical Infrastructure Protection XII*, Sujeet Sheno and Jason Staggs, Eds. IFIP Advances in Information and Communication Technology, Springer Berlin Heidelberg, 2018.

**Conference**

- Gaede, R. K., Morris, T., **Das, R.**, Lei, Y., Alves, T., Zhou, H., Fahimi, F. (2019, June), Work in Progress: Layering Cybersecurity on Domain Engineering Instruction Paper presented at 2019 ASEE Annual Conference Exposition, Tampa, Florida.
- **Das, R.**, Menon, V. and Morris, T., On the Edge Realtime Intrusion Prevention System for DoS Attack. *5th International Symposium for ICS SCADA Cyber Security Research 2018 (ICS-CSR 2018)*, Hamburg, Germany, August 29-30, 2018.

- **Das, R.**, Morris, T., Machine Learning and Cyber Security, *International Conference on Computer, Electrical Communication Engineering*, Kolkata, West Bengal, India, December 22-23, 2017.
- Gunti, N., Lingasubramanian, K., Alves, T., **Das, R.**, Morris, T., Virtual Simulation Platform for Studying Hardware Trojan Vulnerabilities in SCADA Systems, Proceedings of the 2017 *National Cyber Summit Research Track*, Huntsville, AL, June 6-8, 2017.
- Alves, T., **Das, R.**, Morris, T. Virtualization of Industrial Control System Testbeds for Cybersecurity. *Second Annual Industrial Control System Security (ICSS) Workshop at the 2016 Annual Computer Security Applications Conference.*, Los Angeles, CA. December 5-9, 2016.
- S. Dutta, A. Sarkar, K. Samanta, **R. Das** and A. Ghosh, Supervision of control valve characteristics using PLC and creation of HMI by SCADA, *First International Conference on Automation, Control, Energy and Systems (ACES)*, Hooghly, Pages 1-5, 2014.
- S. Das, N. Debabhuti, **R. Das**, S. Dutta and A. Ghosh, Embedded system for home automation using SMS, *First International Conference on Automation, Control, Energy and Systems (ACES)*, Hooghly, Pages 1-6, 2014.
- **Das, R.**, Dutta, S., Samanta, K., Sarkar, A. and Das, D., Security Based Domotics, *1st International Conference On Computational Intelligence: Modeling, Techniques and Applications (CIMTA-2013)*, Kalyani, India. Vol-10, Pages 942-948, Paper No.-113, Sept 27-28th, 2013.

## TALKS

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<b>Intrusion Detection/Prevention Systems for Industrial Controllers</b> <i>Scholar's Studio</i> <i>M. Louis Salmon Library, Huntsville, AL</i>	<b>Oct 2019</b>
<b>SCADA Hands-On Workshop</b> <i>Southeastcon 2019</i> <i>Huntsville, AL</i>	<b>April 2019</b>
<b>Virtualizing Industrial Control System for Cybersecurity Research</b> <i>OPAL-RT Regional Seminar</i> <i>Atlanta, GA</i>	<b>Feb 2017</b>

## TEACHING EXPERIENCE

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<b>Instructor, Cyber Security Awareness Class</b> <i>The University of Alabama in Huntsville</i> <i>Huntsville, AL</i>	<b>Spring 2018, Fall 2018, Spring 2019</b>
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Taught a hands-on SCADA and cybersecurity course to Mechanical, Chemical, Electrical, Civil and Aerospace Engineers.