

# Sonia Mary Chacko, PhD

## Robotics Engineer

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### Education

**PhD in Mechanical Engineering (Robotics specialization)**, Overall GPA: 3.86 (September, 2020)  
NYU Tandon School of Engineering - Brooklyn, NY, USA

**Master of Technology in Mechatronics Engineering**, CGPA: 9 (on a scale of 10) (May, 2012)  
National Institute of Technology Karnataka - Surathkal, India

**Bachelor of Technology in Electronics and Communications Engineering**, Score: 74.92% (July, 2007)  
Mahatma Gandhi University - Kottayam, India

### Skills and Competencies

**Programming Skills:** C, C++, Modern C++, Python, C#, Embedded C, Unix Shell Scripting, Verilog/VHDL

**Robotics/Embedded/Software Development and Simulation Tools:** ROS, Dynamixel SDK, Gazebo, OpenCV, MATLAB, LabVIEW, AWS Cloud9, Microsoft Visual Studio, Arduino, Raspberry Pi, Gazebo, CARLA, Git/Github

**Android/iOS AR Development Platforms/Libraries:** Unity3D, ARCore, Vuforia

**Automation Tools:** PLC (Allen Bradley, Siemens), SCADA (Wonderware InTouch)

### Work History

#### 1. NYU Tandon School of Engineering, Brooklyn, NY (July 2016 – August 2020)

##### Doctoral Researcher, Research Mentor:

- Full-time robotics researcher focusing human-robot interaction approaches by applying AR technology
- Development of robotics platforms: Dynamixel manipulators (4 and 5 DOF), OpenManipulator, TurtleBot3 mobile robot
- Design and conduction of quantitative analysis and qualitative user studies (NASA -TLX, SUS, SAGAT)

##### Research Mentor, STEM Professional Development (PD) Trainer:

- Worked in an NSF-funded project as a PD STEM trainer for NYC public school teachers to implement robotics into the middle school science and math curriculum
- Provided training and research guidance to graduate, undergraduate, and high school summer interns

#### 2. RTM Nagpur University, Nagpur, India (June 2014 – April, 2016), Assistant Professor

#### 3. Robert Bosch Engineering & Business Solutions Ltd, Bangalore, India

##### Intern (June, 2011 – January, 2012):

Project: *Battery management system of autonomous lawn mower*

- Carried out battery charging and discharging profile analysis
- Open circuit voltage test and analysis of battery behavior based on its parameters
- Modeling and State of Charge (SOC) estimation
- Technical documentation

##### Software Engineer (June, 2012 -December, 2012):

Project: *Embedded system development of EMS dongle for thermostatic control unit*

- Code Development
- Porting of API
- Developer testing
- Code Coverage Analysis
- Technical documentation

#### 4. Wipro Technologies, Cochin, India (January, 2008 – January, 2009), VLSI Engineer

Project: *Physical Layer for DDR Memory*

- ASIC design and functional verification
- Project and testing environment setup includes test bench, tasks, run scripts
- Functional test case coding and simulation
- Spyglass Lint cleanup

Project: *LVDS macro development in 45nm technology*

- Testing environment setup and test plan
- Development of functional and DFT (Design for Test) test cases, coding and simulation
- Code coverage analysis, gate level simulation, Conformal LEC, Fast scan, and test pattern generation

**Research and Publications:** <https://soniamaryc.github.io/my-publications.html>