

# Sebastin Santy (sebastinsanty.com)

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- Education**      **Birla Institute of Technology and Science (BITS) Pilani**, Goa, India  
*B.E. (Hons.), Electronics and Instrumentation Engineering*      July 2015 - Present
- Internship Experience**      **Mozilla**  
*Google Summer of Code Intern*      May 2017 - Aug 2017
- Revamped the existing bug filing interface (enter\_bug.cgi) into a single page interface reducing the multi-hop db access, unnecessary template rendering etc. This enhances the speed and performance in bug filing. [Proposal](#).
- Research Projects**      **Study and Implementation of Critical Protocol Analysis**  
*Advisor: Prasad Talasila*      Jan 2017 - May 2017
- Spawned a cross-collaboration workbench for BITS Darshini, a modular, concurrent, customizable protocol analyzer. This is implemented for sharing the experiments among researchers and experts (for review) in order to save resources on analysis of large pcap files involved in the process.
  - Developed a vagrant deployment of the application for cross-platform installation.
  - Modularized and refactored BackboneJS based client module. Decoupled the persistence code from the rest of the codebase.
- Approximate Frontalization of Unconstrained Faces using BEGAN**  
Create approximate frontal face image using a side posed image      Aug 2017 - Present
- BEGANs give most superior results in creation of faces, owing to auto-encoder based GANs. Its interpolatory feature is able to generate a face out of two different faces.
  - Working towards making frontal face images from interpolation of mirrored side pose.
- Detection of Stealth Objects using the emitted Sound Waves**  
*Advisor: Prof. Neena Goveas*      Apr 2017 - Present
- In the ongoing work, the time-series of sound waves across multiple sources and of varying amplitude (due to doppler shift of source and movement of detector) is collected and is analyzed to identify sources and their emission frequencies.
  - The time-series is encoded as images using Tiled CNNs in order for the time-series to be analyzed further as an image processing problem.
- Publications**      Talasila,P.,**Santy,S.**,Rai,A. et al., "*BITS Darshini: A Modular, Concurrent Protocol Analyzer Workbench.*", 19th International Conference on Distributed Computing and Networking (ICDCN 2018, ACM).
- Other Projects**      **Replacing REST API endpoints with GraphQL, Treeherder**  
*Mentors: Cameron Dawson & William Lachance (Mozilla)*      Feb 2017 - Present
- Responsible for handling the integration of GraphQL based APIs on Mozilla's automation tool, Treeherder. GraphQL queries only the required variables from the database, which improves the efficiency drastically.

### **Custom Forms application using REST API**

*Mentor: Dylan Hardison (Mozilla)*

Dec 2016 - Jan 2017

- Made a custom form example application which uses REST API (also auth delegation callbacks) to file the application as bugs on bugzilla.mozilla.org. This is to keep track of all the data generated through forms as bugs.
- Handles dynamic class models (with metaclasses) based on the feedback of the author.

### **AutolabCLI: Command Line Interface for AutolabJS**

*Mentor: Prasad Talasila*

Aug 2016 - Dec 2016

- Developed a CLI for AutolabJS which helps in committing the code to local gitlab server, submit the code from gitlab server to the evaluation nodes and retrieve the results using a socket connection.
- Published on npm and currently in use for programming labs in BITS Goa.

### **Graduation Eligibility Algorithm**

*Academic Registration & Counselling Division (ARCD), BITS Goa* Nov 2017 - Jan 2017

- Designed an algorithm to check the graduation eligibility of students based on the number of credits taken, and the number of Disciplinary & Open Electives completed.
- Complexities were involved, regarding the unusual combinations of courses and degrees, that BITS Pilani offers.

## Open Source

- Contributed to **Firefox with a globally distributed workforce** of Mozilla's engineers.
- Member and Reviewer for **Mozilla B-Team**, which handles Bugzilla and its operations.
- Managing **AutolabJS** (programming labs autograder) Github Organisation.
- Contributing to **scikit-learn**, a python-based Machine Learning library.
- Contributing to **rtensorflow**, a R(language) wrapper on the C API of Tensorflow.

## Talks and Conferences

### **Recent Advances in Computer Vision and Deep Learning**

*Attended. Audience: Academia and Industrial Researchers* IIIT Hyderabad, July 2017  
Sessions taken by researchers from DeepMind, Facebook AI Research, Oxford VGG, INRIA, IITs. Various recent topics in Computer Vision and Deep Learning research were covered.

## Leaderships and Teaching

### **Open Source Development (OSD) Labs, BITS Goa**

*Founding Member*

Sept 2016 -Present

It is an initiative to foster the open source culture and innovation in BITS Goa. Hosted several sessions, like teaching Git, Github etc. Also responsible for making the new Student Welfare Division software ( <http://osdlabs.org>)

### **Waves, Quark, BITSMUN, BITS Goa**

*Lead Developer*

Dec 2015 -Present

Responsible for building and maintaining the websites of Waves (cultural fest), Quark (technical fest), BITSMUN (Model UN) of BITS Pilani Goa

### **Reinforcement Learning, Center for Technical Education, BITS Goa**

*Co-Instructor*

Aug 2017 -Present

Introduction to RL covering various topics like Q-Learning, MDPs, Policy Search, Credit Assignment Problems, Bellman Equation, DQN's etc.

### **Introduction to Programming, Center for Technical Education, BITS Goa**

*Co-Instructor*

Aug 2017 -Present

To introduce students to multiple programming paradigms, object oriented concepts and functional programming using the language Python.

Honors and Awards	<p><b>Iken Scientifica, 2009</b>  <i>Student Icon of India</i> IIT Bombay, 2009  As a part of the winning team, got an opportunity to have a discussion with The Former President of India, His Excellency, <b>Dr. APJ Abdul Kalam</b>. Entire show was aired on The National Geographic Channel and was supported by the Ministry of Science And Technology, Govt. Of India</p> <p><b>International Computer Fair And Seminar</b>  <i>Runner's Up</i> CMS Lucknow, 2012  Runner's up in the web design and implementation round (WebTek) at International Computer Fair and Seminar (COFAS)</p> <p><b>National Standard Examination in Chemistry, 2015</b>  <i>State Topper</i> TIFR, 2015  Secured a State Top 1% in NSEC, which is the prelims to IChO</p>		
Skills	<p><b>Languages:</b> Python, JS (Node), Perl, C, C++, SQL, VB.NET  <b>Frameworks:</b> Django, ReactJS, Flask, ExpressJS, TemplateTK  <b>Technologies:</b> Heroku, AWS EC2, Travis CI, Docker, Vagrant, Grunt, GraphQL  PyTorch, L<sup>A</sup>T<sub>E</sub>X, Git, AutoCAD, Proteus  <b>Operating Systems:</b> Ubuntu, CentOS, macOS, Windows  <b>Spoken Languages Known:</b> English, Hindi, Malayalam, Gujarati</p>		
Relevant Coursework	<p>Microprocessors and Interfacing, Digital Design, Signals &amp; Systems, Computer Architecture*  Neural Networks and Fuzzy Logic*, Satellite Communication*, Microelectronic Circuits, Symbolic Logic, Control Systems. (* - Present)</p>		
Interests	<p>Reinforcement Learning, Computer Vision, Software Engineering, Networks.</p>		
References	<table> <tr> <td>Prof. Neena Goveas Associate Professor Department of Computer Science Associate Dean of ARCD BITS Pilani, Goa neena@goa.bits-pilani.ac.in</td> <td>Dylan Hardison Staff Software Engineer Bugzilla Owner B-Team Mozilla Corporation dylan@mozilla.com</td> </tr> </table>	Prof. Neena Goveas Associate Professor Department of Computer Science Associate Dean of ARCD BITS Pilani, Goa neena@goa.bits-pilani.ac.in	Dylan Hardison Staff Software Engineer Bugzilla Owner B-Team Mozilla Corporation dylan@mozilla.com
Prof. Neena Goveas Associate Professor Department of Computer Science Associate Dean of ARCD BITS Pilani, Goa neena@goa.bits-pilani.ac.in	Dylan Hardison Staff Software Engineer Bugzilla Owner B-Team Mozilla Corporation dylan@mozilla.com		