

Sebastin SANTY

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EDUCATION

July 2019 | **Birla Institute of Technology and Science Pilani, GOA, India**
August 2015 | Bachelor of Engineering (Hons.), Electronics & Instrumentation

EXPERIENCE

Present | **Microsoft Research, Bangalore, India | Multilingual Systems**
July 2019 | *AI Center Fellow | Advisors: Kalika Bali, Monojit Choudhury and Siddharth Prakash*
Working in the intersection of NLP and ICTD, developing technologies for low-resource languages.

January 2019 | *Research Intern | Advisors: Kalika Bali, Monojit Choudhury and Sandipan Dandapat*
Developed an interactive machine translation interface on top of state-of-the-art transformer model to be used by [StoryWeaver](#) for faster turnaround of document translations. [Video]

December 2018 | **Carnegie Mellon University, Pittsburgh, USA**
July 2018 | *Research Intern (Senior Thesis) | Advisor: David Touretzky*
Worked on real-time obstacle avoidance and doorway navigation using a monocular camera on a low-computational robot like Anki Cozmo. [Video]

June 2018 | **University College London, London, UK | Web Intelligence Group**
May 2018 | *Summer Research Intern | Advisors: Emine Yilmaz and Rishabh Mehrotra*
Worked on Task-based Information Retrieval, specifically on recommendation by leveraging external ontology. Used the principles of Bayesian Rose Trees and Distance Dependent Chinese Restaurant Process to design a dynamically enriched ontology. [UserContext]

August 2018 | **NumFOCUS | Julia Computing**
May 2018 | *Google Summer of Code 2018 | Mentor: Lyndon White*
Added data repository support to [DataDepsGenerators.jl](#), which in turn creates registration blocks for [DataDeps.jl](#). [DataDeps.jl](#) helps in downloading scientific data with ease. Talk on this work delivered at [PyData New York City 2018](#).

August 2017 | **Mozilla | Bugzilla**
May 2017 | *Google Summer of Code 2017 | Mentor: Dylan Hardison*
Revamped the existing bug filing interface ([enter_bug.cgi](#)) into a single page reducing the multi-hop db access and unnecessary template rendering. This enhanced the speed and performance in bug filing.

PUBLICATIONS

Sebastin Santy, Wazeer Zulfikar, Rishabh Mehrotra, Emine Yilmaz. "Towards Task Understanding in Visual Settings" 33rd AAAI Conference on Artificial Intelligence, 2019

Lyndon White, Sebastin Santy "DataDepsGenerators.jl: making reusing data easy by automatically generating DataDeps.jl registration code" Journal for Open Source Software (JOSS), 2018

Prasad Talasila, Mihir Kakrambe, Anurag Rai, Sebastin Santy, Neena Goveas, Bharat M Deshpande "BITS Darshini: A Modular, Concurrent Protocol Analyzer Workbench" 19th International Conference on Distributed Computing and Networking, 2018

SELECTED PROJECTS

Generating Task-Aware Scene Descriptions AUG'18 - PRESENT
Extension of work done at University College London Project page
> Leveraging [TaskHierarchy138K](#) which aids in the scene description generation by injecting task coherence scores into the state-of-the-art models. This helps the machines to be task-aware and produce more meaningful descriptions.
> Work accepted at AAAI 2019 Students Abstracts Program.

Analytics Sensor Test-Kit for Advanced Process Control

NOV'17 - MAY'18

Internet of Things with Nitin Sharma | Bill & Melinda Gates Foundation

- > Designed a proof-of-concept IoT scalable interface to gather data from sensors installed at the waste water treatment site. This work was in collaboration with Ohio University, Cranfield University, and Caltech.

Study and Implementation of Critical Protocol Analysis

JAN'17 - MAY'17

Network Measurements with Prasad Talasila

- > 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.
- > Modularized and refactored BackboneJS based client module. Decoupled the persistence code from the rest of the code-base. Also developed Vagrant container for easy installation.

Approximate Frontalization of Unconstrained Faces using BEGAN

AUG'17

Generative Adversarial Networks with Tirtharaj Dash

- > Boundary Equilibrium GANs give the best 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.
- > Devised a face-frontalize algorithm which used interpolation feature on mirrored side pose.

REST API: Custom Forms & GraphQL replacement

DEC'16 - MAR'17

With Dylan Hardison, Cameron Dawson & William Lachance (Mozilla)

- > Made a custom form example application which uses REST API alongwith auth delegation callbacks to file the application as bugs on bugzilla.mozilla.org. This is to track the data generated through forms as bugs.
- > Responsible for introducing 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.

AutolabCLI: Command Line Interface for AutolabJS

AUG'16 - DEC'16

CLI Application with Prasad Talasila

- > Developed a CLI for AutolabJS which helps in committing the code to local gitlab server, submitting the code from gitlab server to the evaluation nodes and retrieving the results using a socket connection.
- > Published on npm and currently in use for programming labs at the university.

TALKS AND CONFERENCES

PyData New York City

NEW YORK, NY, USA, OCT'18

Delivered a talk. Audience: Data Scientists

Invited to give a talk at PyData New York City 2018 on "Repeatable Data Setup for Repeatable Science" which was based on my Google Summer of Code work with Julia Computing.

Mozilla All-Hands (Group Meeting)

AUSTIN, TX, USA, DEC'17

Attended (Invite Only). Audience: Mozilla Employees

Invited to attend Mozilla's conference held at Austin, Texas. Discussion on future plans of Bugzilla, its modernization, and chalking out the milestone for the year of 2018.

Recent Advances in Computer Vision and Deep Learning

IIT HYDERABAD, JULY'17

Attended. Audience: Academia and Industrial Researchers

Sessions taken by researchers from DeepMind, Facebook AI Research, Oxford VGG, INRIA, IITs. Various recent topics in Computer Vision and Deep Learning research were discussed.

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.
- > Managed [AutolabJS](#) (programming labs autograder) Github Organisation.
- > Actively contributed to [scikit-learn](#), a python-based Machine Learning library, for a period of two months.

TEACHING AND LEADERSHIP ROLES

Present
August 2016

Open Source Development

Founding Member

It is an initiative to foster the open source culture and innovation at BITS Goa. Hosted several informative and technical sessions. Also responsible for making Student Welfare Division software.

May 2018 Jan 2018	Computer Programming Course <i>Teaching Assistant</i> Responsibilities included evaluating labs, and helping students with the course in general.
December 2017 August 2017	Introduction to Programming <i>Co-Instructor</i> Introduced students to multiple programming paradigms, object oriented concepts and functional programming using the language Python.
December 2017 December 2015	Waves, Quark, BITS MUN <i>Lead Developer</i> Responsible for building and maintaining the websites of Waves (cultural fest), Quark (technical fest), BITS Model UN of BITS Pilani Goa.

RELEVANT COURSEWORK

Computer Vision (16720B @CMU)*, Machine Learning, Data Mining, Symbolic Logic, Microprocessors and Interfacing, Digital Design, Signals & Systems, Computer Architecture, Neural Networks and Fuzzy Logic, Data Communication and Networks, Control Systems. (* = Auditing)

HONOURS AND AWARDS

Iken Scientifica, 2009 <i>Student Icon of India</i> As a part of the winning team, got an opportunity to have a tête-à-tête with the former President of India, His Excellency, Dr. APJ Abdul Kalam. Entire show was aired on The National Geographic Channel and was supported by the Ministry of Science And Technology, Govt. Of India.	IIT BOMBAY, '09
International Computer Fair And Seminar <i>Runner's Up</i> Runner's up in the web design and implementation round at International Computer Fair and Seminar	LUCKNOW, '12
National Standard Examination in Chemistry, 2015 <i>State Topper</i> Secured a State Top 1% in NSEC, the prelims to International Chemistry Olympiad	TIFR, '15

SKILLS

Languages	Python, JS (Node), Julia, Perl, C, C++, SQL, VB.NET
Frameworks	OpenCV, Django, Flask, ExpressJS, ReactJS
Technologies	Heroku, AWS EC2, Travis CI, Docker, Vagrant, Grunt, GraphQL, PyTorch, \LaTeX , Git, AutoCAD
Operating Systems	Ubuntu, CentOS, macOS, Windows
Spoken Languages	English, Hindi, Malayalam, Gujarati

REFERENCES

David Touretzky <i>Research Professor, CMU</i> dst@cs.cmu.edu	Emine Yilmaz <i>Professor, UCL</i> emine.yilmaz@ucl.ac.uk	Rishabh Mehrotra <i>Research Scientist, SPOTIFY</i> rishabh@spotify.com	Neena Goveas <i>Professor, BITS PILANI</i> neena@goa.bits-pilani.ac.in
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