

# Pranav Ballaney

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## EDUCATION

**Birla Institute of Technology and Science, Pilani**  
*Master of Science in Biological Sciences*  
*Bachelor of Engineering in Computer Science and Engineering*  
**Cumulative CGPA: 9.16/10**

Goa, India  
*Aug. 2018 – May 2023 (expected)*

**Delhi Public School, Indira Nagar**  
*All India Senior Secondary Certificate Examination*  
**Percentage: 89.4%**

Lucknow, India  
*Graduated May 2017*

## WORK EXPERIENCE

**Debian**  
*Student Developer under Google Summer of Code 2020*

May 2020 – August 2020  
[\(Link to Project\)](#)

- Worked on quality assurance and continuous integration of applications in life sciences and medicine.
- Designed test suites for over 40 applications in bioinformatics, performed bug fixes and added several new packages to the Debian operating system.

## RESEARCH EXPERIENCE

**iGEM Competition 2020, BITS Goa**  
*Software Team Lead*

November 2019 – November 2020  
[\(Link to Project\)](#)

- Awarded the **Gold Medal** along with two Special Prizes for Best Software Tool and Best Composite Part
- Worked under the supervision of Dr. Sumit Biswas, as part of the first iGEM team from BITS Goa, on reduction of post-harvest losses in sugarcane, by using genetically engineered bacterial systems.

**CSIR - Institute of Genomics and Integrative Biology**

February 2021 - Present

Currently working on molecular dynamics simulations of membranes involved in autophagocytosis, under the guidance of Dr. Lipi Thukral, Senior Scientist at the Computational Structural Biology lab.

**RNA Secondary Structure Prediction**

January 2021 - Present

Currently working on evaluation and extension of computational tools used to predict RNA secondary structures, under the guidance of Dr. Raviprasad Aduri.

**CSIR - Institute of Genomics and Integrative Biology**  
*Research Intern*

May 2020 – June 2020

- Worked under the guidance of Dr. Lipi Thukral, to quantify interactions between the SARS CoV2 spike glycoprotein and the human ACE2 receptor.
- Built visualizations using comparative force-directed graphs to understand these interactions.

**Study Oriented Project**

January 2020 - April 2020

Worked under the supervision of Dr. Sumit Biswas, on tissue-specific re-evaluation of the efficacy of MicRoOn in identifying miRNAs associated with cancer, using machine learning techniques.

## PROJECTS

**iGEM WikiSync and the iGEM Wiki Starter Pack** | *Python, Node.js*  
Developed software to help iGEM teams build their wikis. Adopted by several iGEM teams throughout the competition season and awarded the **Best Software Tool** Special Prize at iGEM 2020.

June 2020 – Present  
*iGEM WikiSync*  
*iGEM Wiki Starter Pack*

## CERTIFICATIONS

**Deep Learning Specialization**  
*deeplearning.ai on Coursera*

May 2019  
[\(Certificate\)](#)

## TECHNICAL SKILLS

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**Languages:** Python, C, C++, Java, HTML, CSS, JavaScript, Bash

**Frameworks:** Flask, jQuery, NumPy, Pandas, Scikit-Learn, ProDy

**Bioinformatics:** Protein modelling, docking and secondary structure prediction

## RELEVANT COURSES

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**Biology:** Biochemistry, Microbiology, Cell Biology, Molecular Biology, Bioinformatics and Genetics, Recombinant DNA Technology, Animal Physiology

**Mathematics:** Mathematics I (Multivariable and Vector Calculus), Mathematics II (Linear Algebra and Complex Analysis), Mathematics III (Differential Equations), Probability and Statistics

**Computer Science:** Object Oriented Programming, Discrete Structures for Computer Science, Logic in Computer Science

## OTHER EXPERIENCE

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Peer Mentor as a part of the Peer Mentorship Program at BITS Pilani, helping students navigate through college and looking after their academic and personal interests.

## SCHOLARSHIPS AND AWARDS

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- Received institute scholarship at BITS Pilani for each semester in college.
- Received a Letter of Appreciation from Union Minister of Education for obtaining a CGPA of 10 in 10th Standard Board Examinations.

## EXTRA-CURRICULAR ACTIVITIES

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- Core member at Synchronoise, the BITS Goa a cappella club.
- Core member at Srutilaya, the BITS Goa classical music club.