

# Ravindra Raut

+919635509525, Nanded, Maharashtra, India

✉ raviraut206@gmail.com | 🏠 ravindra-raut.netlify.app | ☎ 0000-0002-2615-7757 | 📺 Ravindra-Raut | 🌐 ravindra-raut

## Education

---

### Doctor of Philosophy, Biotechnology

NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR

*Durgapur, WB, India*

2014 → 2022

### Master of Technology, Biotechnology

INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

*Guwahati, Assam, India*

2011 → 2013

### Master of Science, Biotechnology

SRTM UNIVERSITY NANDED

*Nanded, Maharashtra, India*

2007 → 2009

### Bachelor of Science, Chemistry, Botany & Zoology

SRTM UNIVERSITY NANDED

*Nanded, Maharashtra, India*

2004 → 2007

## Research Experience

---

### PhD Research Fellow

NIT DURGAPUR

*Durgapur, West Bengal, India*

September 2014 → August 2021

- Project: Study of Transposable Elements in rice (*Oryza sativa* L.) and their association in host resistance for diseases
- Discovered that the TEs showed association with disease resistance R-genes in the *O. sativa* Nipponbare
- Studied, investigated, identified and analyzed transposons in 29 rice varieties

### Intern

Bio-EGICORE

*Lucknow, UP, India*

August 2014 → November 2014

- Project: Development of Ayurvedic Medicinal Plant database, A-PLANTS 1.0
- Designed and developed the web-based repository for the scientific and experimentally proven applications of dietary spices and ayurvedic medicinal plants

### Graduate Student

IIT GUWAHATI

*Guwahati, Assam, India*

July 2012 → June 2013

- MTech Project: Development of Seri Bioresource Database (SBDB)
- Constructed and designed the flat file-based database containing information such as silkworm distribution, all the diseases, pathogens, pests, predators, and parasites of silkworms

### Graduate Student

SRTM UNIVERSITY NANDED

*Nanded, Maharashtra, India*

Jan 2009 → June 2009

- MSc Project: Isolation and purification of peroxidase from the hull of soybean (*Glycine max* L.)
- Investigated and tested the various biochemical tests and physiological conditions affecting enzyme activity of soybean hull peroxidase (EC1.11.1.7)
- Discovered that soybean hull peroxidase is a novel thermostable enzyme

## Supervisory & Mentoring Experience

---

### Co-Guide

TDU BENGALURU

*Bengaluru, Karnataka, India*

April 2019 → September 2019

- Supervised projects on transposable element analysis in the rice genome to one graduate and 3 undergraduate students
- Planned, monitored the executed techniques, protocols, and analyzed the outputs

## Professional Experience

---

### Visiting Research Scholar

TDU BENGALURU

*Bengaluru, Karnataka, India*

February 2017 → January 2019

- The University of Transdisciplinary Health Sciences & Technology (TDU), Center of Functional Genomics & Bioinformatics, Malali Gowda Lab

## Teaching Experience

---

### Teaching Assistant

TDU BENGALURU

- Taught Ecology and Evolution course to MSc Students
- Orchestrated classroom activities, including tutoring, grading assignments, and evaluating exams results

*Bengaluru, Karnataka, India*

*February 2018 -> June 2018*

### Teaching Assistant

NIT DURGAPUR

- Taught Bioinformatics Laboratory course to MTech Students
- Designed course content, evaluated assignments, wrote and graded exam
- Oversaw batch of 25 students per semester for four years

*Durgapur, West Bengal, India*

*February 2016 -> April 2019*

### Workshop Facilitator

TDU BENGALURU

- Conducted practical session on Transposon Discovery and Annotation in 3 (8th, 10th, 12th) NGS workshops
- Taught the topic Genome Browser and Databases in the 14th NGS workshop

*Bengaluru, Karnataka, India*

*October 2018 -> November 2019*

## Scholarship, Award and Honor

---

### Institute fellowship

BY MINISTRY OF EDUCATION, GOVT OF INDIA

- INR 420000/yr for 5 yrs for PhD research

*NIT Durgapur*

*September 2014 -> August 2019*

### GATE fellowship

BY MINISTRY OF EDUCATION, GOVT OF INDIA

- INR 96000/yr for 2 yrs for MTech course

*IIT Guwahati*

*July 2011 -> May 2013*

### GYAN Scholarship Award

BY SCIGENOM RESEARCH FOUNDATION

- The registration fee waived to participate the conference; NGBT2019, Mumbai

*Mumbai*

*-> October 2019*

### Best Poster Award

BY INSTITUTE OF BIORESOURCES AND SUSTAINABLE DEVELOPMENT, IMPHAL

*Imphal*

*-> December 2012*

### ICMR-Junior Research Fellow

BY INDIAN COUNCIL FOR MEDICAL RESEARCH, GOVT OF INDIA

- a fellowship for PhD research but Not availed due to availability of Institute fellowship

*-> September 2014*

### ICAR-National Eligibility Test

BY BY INDIAN COUNCIL FOR AGRICULTURAL RESEARCH, GOVT OF INDIA

- for job of Assistant Professor/Lecturer

*-> March 2014*

### BioC2021 Scholarship Award

BY BIOCONDUCTOR

- The registration fee waived to participate BioC2021

*Online*

*-> August 2021*

## Programming Skill

---

### Programming languages

R, PYTHON, BASH, PERL

### Workflow management system

NEXTFLOW, SNAKEMAKE

### Containerisation tool

DOCKER

### Cloud computing

AWS, GALAXY

### Version control

GIT, GITHUB

## Data visualization

GGPLOT2, PLOTLY, IGV

## Document preparation system

LATEX, R MARKDOWN

# NGS skill

---

## Downstream sequence data analysis of

ILLUMINA, OXFORD NANOPORE

### WGS

FASTQC, SPADes, QUAST, PROKKA

### RNAseq

TRINITY, RSEM, EDGER, TRINOTATE

### Repeat analysis

REPEATMODELER, REPEATMASKER, REPEATEXPLORER

### SSR mining

MISA, GMATA

### Variant calling

GATK, BWA, VARSCAN, SNPEFF, CLINVAR, MUTALYZE, VARIANTVALIDATOR, ENSEMBL VEP

### Micro Array

GEO, ARRAYEXPRESS, LIMMA/BIOCONDUCTOR

### Databases

RGAP, ENSEMBL, UCSC, HGVS, DBSNP, PDB, EXPASY, NCBI

# Conference Activity

---

## NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT) Conference

*Mumbai, India*

GENOME-WIDE ANALYSIS OF TRANSPOSABLE ELEMENTS IN DIFFERENT RICE SPECIES AND ITS ASSOCIATION IN PLANT DISEASE RESISTANCE (R) GENES IN ORYZA SATIVA NIPPONBARE

*29September 2019 -> 1October 2019*

- Poster Presentation, won GYAN scholarship Award

## National Symposium and Workshop on Future of functional genomic

*Bengaluru, India*

GENOME-WIDE ANALYSIS OF TRANSPOSONS IN ORYZA SATIVA L.

*13October 2019 -> 14October 2019*

- Poster Presentation

## International Consultative Meeting on Seri Biotechnology

*Imphal, India*

DEVELOPMENT OF SERI-BIORESOURCE DATABASE

*5December 2012 -> 7December 2012*

- Won best poster award

## Bioinformatics from sequence and structural perspective

*Kalyani, WB, India*

DEPARTMENT OF BIOCHEMISTRY AND BIOPHYSICS, UNIVERSITY OF KALYANI

*11.March 2019 -> 13.March 2019*

- Participation, Practical session on AutoDock vina, GROMACS

## Transposable Elements

*Berlin, Germany*

PHYSALIA-COURSES, BOTANICAL MUSEUM, FREIE UNIVERSITÄT

*23.April 2018 -> 27.April 2018*

- Participation, Practical session on RepeatModeller, RepeatMasker

## 9th RepeatExplorer Workshop on the Application of Next Generation Sequencing to Repetitive DNA Analysis

*Online*

INSTITUTE OF PLANT MOLECULAR BIOLOGY, BRANISOVSKA, CZECH REPUBLIC

*25.May 2021 -> 11.June 2021*

- Oral Presentation, Transposon analysis of rice (Oryza sativa L.)

# Volunteer Work

---

## Organizing Secretary

*Bengaluru, India*

THE UNIVERSITY OF TRANSDISCIPLINARY HEALTH SCIENCES & TECHNOLOGY (TDU)

*26.November 2018 -> 1.December 2018*

- We organized the workshop; 8th Training on NGS and Analysis on Genomics, Transcriptome and Transposons

## Organizing team member

THE UNIVERSITY OF TRANSDISCIPLINARY HEALTH SCIENCES & TECHNOLOGY (TDU)

*Bengaluru, India*

*October 2017 -> December 2019*

- We organized 11 workshops on NGS data analysis on Genomics, Transcriptomics, MetaGenomics, Transposons and a National Symposium on Future of Functional Genomics

## Volunteer

CENTRE FOR THE ENVIRONMENT, INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

*Guwahati, India*

*-> 10. December 2012*

- Designed and helped in making Proceeding booklet and in organizing the International Symposium on Bioengineering

## Training & Certification

---

### Linux Admin Training

BESANT TECHNOLOGIES

*Bengaluru, India*

*October 2017 -> November 2017*

### Image Analysis Course

C-CAMP, BANGALORE

*Bengaluru, India*

*29. August 2019 -> 30. August 2019*

### Python Programming Training

LCIPL BANGALORE

*Bengaluru, India*

*8. June 2019 -> 16. June 2019*

### Bioconductor for Genomic Data Science

COURSERA

*Online*

*-> 16. August 2019*

### Genomic Data Science with Galaxy

COURSERA

*Online*

*-> 11. August 2019*

### Introduction to Git and GitHub

COURSERA

*Online*

*-> 18. July 2019*

### Data Visualization Using Python

IBM

*Online*

*-> June 2019*

### Introduction to the Tidyverse

DATA CAMP

*Online*

*-> 17. August 2019*

## Publication

---

->

- Subhankar Roy Barman, Ravindra A Raut, et al., Recent Advances in the Development of Transgenic Crop Plants, Biosafety Aspects, and Future Perspectives, Apple Academic Press, 2017, vol 2, pg 294, <https://doi.org/10.1201/9781315213736>
- Ravindra Raut, Silk statistics of India, Mejkankari ICMS, 2012, pg 24
- Ravindra Raut, Development of Seri-Bioresource database, ICMS 2012, <https://doi.org/10.5072/zenodo.894833>
- Shehwaz Anwar, Ravindra Raut, et al., Role of Ajwa Date Fruit Pulp and Seed in the Management of Diseases through In Vitro and In Silico Analysis, MDBI-Biology, 2022, vol 11, pg 78, <https://doi.org/10.3390/biology11010078>
- Shehwaz Anwar, Ravindra Raut, et al., Vitamin B12 Deficiency And Increased Susceptibility And Severity Of Covid-19: A Review, IJCRT, 2022, vol 10, pg b623, <http://doi.org/10.1729/Journal.31257>