# Jewel Johnson

**BS-MS Dual Degree in Biology**

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## SUMMARY

- BS-MS dual degree in Biology from the Indian Institute of Science Education and Research Thiruvananthapuram

- Experience of 3 years in studying behavioural and visual ecology of social insects

- Published one peer-reviewed article

- Proficient in data wrangling and data visualization using R

- Qualified two national level competitive exams and achieved ranks below 100

## RESEARCH INTERESTS

Behavioural ecology, Visual ecology, Social behaviour, Understanding the anthropogenic effects on animals

## EDUCATION

**Indian Institute of Science Education and Research Thiruvananthapuram**     Aug. 2015 – Aug. 2020
*Integrated BS-MS Dual Degree in Biological Sciences*     Thiruvananthapuram, India

- **Relevant Coursework**: Ecology Evolution and Behaviour, Evolutionary Ecology, Ecological Interactions, Neurobiology, Molecular biology, Advanced Genetics and Genomics, Genome Stability, Developmental Biology, Advanced Developmental Biology and Biological Data Analysis

- **Relevant Inter-disciplinary Coursework**: Methods In Structure Determination, Instrumental Methods, Real Analysis, Complex Analysis and Linear Algebra

**Undergraduate Record**     Aug. 2015 – Aug. 2020
*Integrated BS-MS Dual Degree in Biological Sciences*

- **Bachelor of Sciences (BS) GPA**: 7.35 / 10
- **Master of Sciences (MS) GPA**: 9.15 / 10
- **Overall GPA**: 8.31 / 10

## RESEARCH EXPERIENCE

**Visual ecology of the Giant Honey Bee (*Apis dorsata*)**     May 2019 - Apr. 2020
*Major Degree Thesis*     Guide: Prof. Hema Somanathan, IISER-TVM

- Focused on understanding how *A. dorsata* could forage during twilight period despite having day adapted eyes
- Developed a novel training paradigm to train wild *A. dorsata* colonies
- Performed classical conditioning experiments, Y-maze experiments and video analysis
- Performed data analysis and data visualization using R

**Morphometric analysis on Asian Bees**     May 2018 - Dec. 2018
*Semester Project*     Guide: Johanna Yourstone, Lund University, Sweden

- Managed and stored around 100 different species of bee specimens and performed basic morphometric measurements

**Role of phenylalanine in the Asian Honeybee *(Apis cerana)*** May 2018 - Dec. 2018

*Semester Project* Guide: Prof. Hema Somanathan, IISER-TVM

- Focused on understanding whether *A. cerana* could associate amino acids with floral cues
- Performed classical conditioning experiments and video analysis
- Performed data analysis and data visualization using R

**Visual associative learning and olfactory preferences of *Vespa tropica*** May 2017 - Jun. 2017

*Internship* Guide: Prof. Hema Somanathan, IISER-TVM

- Focused on understanding the learning and behaviour of the Greater Banded Hornet *(Vespa tropica)*
- *V. toprica* is a hymenopteran predator reported as invasive species in Europe whose learning ability and odour preferences are previously unknown
- Gained experience in manuscript writing
- Study was published in 2021 and garnered media attention from The Wire Science

## PUBLICATIONS

- Balamurali, G. S., Reshnuraj, R. S., Johnson, J., Kodandaramaiah, U., & Somanathan, H. (2021). Visual associative learning and olfactory preferences of the greater banded hornet, Vespa tropica. In Insectes Sociaux (Vol. 68, Issues 23, pp. 217226). Springer Science and Business Media LLC.

## SKILL SET

**Experimental Skills**
- Experience in training and handling honeybees and hornets for behavioural experiments
- Experience in honeybee keeping and maintaining honeybee colonies
- Experience in using spectrophotometer (Maya 2000, Ocean Optics, USA)

**Technical Skills**
- Proficient in R programming: Knows ggplot2, ggpubr, ggstatsplot, tidyr and dplyr packages
- Familiar with website creation using Rmarkdown, distill and quarto packages in R. Made a personal blog using quarto
- Intermediate knowledge in HTML5 and CSS languages
- Have an Indian Union Driving licence (4-wheeler and 2-wheeler)
- Wildlife Photography

## EXTRA CURRICULAR ACTIVITIES

- R programming enthusiast: Made beginner's level tutorials about ggplot2, ggpubr, tidyr and dplyr packages in R
- Created a tutorials series on "Basic statistics and how to do them in R"
- Co founder of whatsthisdata, a twitter handle promoting science communication through data visualization for the public
- Co-founder of The Ecological Society of IISER-TVM, a student body for promoting environmental awareness and safe guarding the greenery in the campus
- Managed EcoGO, an ambitious project for mapping the entire fauna and flora in IISER-TVM via *iNaturalist*

## AWARDS & HONORS

- Achieved all India rank of **52** in Graduate Aptitude Test in Engineering (GATE) 2020 in Ecology and Evolution Paper. GATE score 606 and GATE Reg no: EY20S57226002
- Achieved all India rank of **91** in Council of Scientific & Industrial Research - Junior Research Fellowship (CSIR-JRF) and National Eligibility Test (NET) Exam 2019 Fellowship (Reg no: 367970). This is the qualifying exam for PhD and lectureship in India.
- Recipient of Innovation in Science Pursuit for Inspired Research (INSPIRE) fellowship. For the duration of 5 years of study in IISER-TVM

## CONFERENCES & PRESENTATIONS

**Poster:** Visual associative learning and odour preferences in a hymenopteran predator | Biology across kingdoms : School of Biology Symposium and Department day (September 2019) | IISER-TVM, India

**Presentation:** Role of phenylalanine in learning in Asian honeybee (*Apis cerana*) | Second Bangalore Meeting On Asian Bees (March 2019) | NCBS Bangalore, India

**Poster:** Visual associative learning in the Greater Banded Hornet (*Vespa tropica*) | Young Ecologists Talk & Interact (YETI) 2018 (January 2018) | Maharaja Sayajirao University of Baroda, India

## INTERESTS & HOBBIES

Photography, Badminton, Cycling, Trekking, Birding, Teaching, Listening to music