

# Shivam Bhardwaj, PhD

Research Scientist · Program Manager · Lab Operations

✉ [shivam.lep@gmail.com](mailto:shivam.lep@gmail.com) | ☎ +1 662 370 9984 | H4 EAD · No Sponsorship Required

[LinkedIn](#) · [Google Scholar](#) · [shivamsmb.github.io](https://github.com/shivamsmb)

## RESEARCH INTERESTS

Phenotypic plasticity · Sexual dimorphism · Wing pattern evolution · CRISPR and functional genomics · Transcriptomics · Evolutionary developmental mechanisms

## EDUCATION

**Doctor of Philosophy · Life Sciences** · National University of Singapore · Singapore 2013 – 2018

Thesis: *The Evolution of Phenotypic Plasticity in Butterflies* Advisor: Prof. Antónia Monteiro

**Master of Science (Integrated BS-MS) · Life Sciences** · IISER Mohali · India 2008 – 2013

Thesis: *Molecular Mechanism of Learning and Memory in C. elegans* Advisor: Prof. Kavita Babu

## PEER-REVIEWED PUBLICATIONS

**2021** Rodriguez-Caro F, Fenner J, **Bhardwaj S** et al. Novel *Doublesex* duplication associated with sexually dimorphic development of dogface butterfly wings. *Molecular Biology and Evolution* 38(11): 5021–5033. [doi](#)

**2020** **Bhardwaj S**, Lim SHJ, Wenk MR, Oliver JC, Nijhout HF, Monteiro A. Origin of the mechanism of phenotypic plasticity in satyrid butterfly eyespots. *eLife* 9. ★ Cover article of the month. [doi](#)

**2019** Dahiya Y, Rose S, Thapliyal S, **Bhardwaj S**, Prasad S, Babu K. Differential regulation of innate and learned behavior by creb1/crh-1 in *Caenorhabditis elegans*. *Journal of Neuroscience* 39(40): 7934–7946. [doi](#)

**2019** Huq M, **Bhardwaj S**, Monteiro A. Male *Bicyclus anynana* butterflies choose females on the basis of ventral UV-reflective eyespot centers. *Journal of Insect Science* 19(1): 25. Featured in Entomology Today, Feb 2019. [doi](#)

**2018** **Bhardwaj S**, Prudic KL, Bear A, Das Gupta M, Wasik BR, Tong X, Cheong WF, Wenk MR, Monteiro A. Sex differences in 20-hydroxyecdysone hormone levels control sexual dimorphism in butterfly wing patterns. *Molecular Biology and Evolution* 35(2): 465–472. ★ Year in Review Cover, Jan 2019. [doi](#)

**2017** Ng SY\*, **Bhardwaj S\***, Monteiro A. (\*equal first author) Males become choosier in response to manipulations of female wing ornaments in dry season *Bicyclus anynana* butterflies. *Journal of Insect Science* 17(4): 81. Featured in Entomology Today, Jul 2017. [doi](#)

**2015** Monteiro A, Tong X, Bear A, Liew SF, **Bhardwaj S** et al. Differential expression of ecdysone receptor leads to variation in phenotypic plasticity across serial homologs. *PLoS Genetics* 11(9). ★ Cover article of the month; featured in PLoS Biologue, Oct 2015. [doi](#)

( Full list at: [Google Scholar Profile](#))

## THESES & OTHER PUBLICATIONS

- 2018 **Bhardwaj S.** *The Evolution of Phenotypic Plasticity in Butterflies*. PhD Thesis, NUS ScholarBank.
- 2013 **Bhardwaj S.** *Molecular Mechanism of Learning and Memory in C. elegans*. MS Thesis, DSpace at IISER Mohali.
- 2017 **Bhardwaj S.**, Monteiro A. Origin and evolution of phenotypic plasticity in butterfly eyespot size. *Mechanisms of Development* 145, S104–S105. [Conference proceedings]
- 2015 **Bhardwaj S.**, Monteiro A. Understanding Images: How Butterflies 'Wink' Only Some of their Eyespots in Response to Temperature. *PLoS Biologue*, Oct 2015. [Outreach article]

## PROFESSIONAL EXPERIENCE

### Subject Matter Expert · AI Consultant (Contractor) · Mercor Intelligence · San Francisco, CA

January 2026 – Present

- Partnered with a top AI lab to advance model reasoning in life sciences; authored high-complexity SFT datasets, exceeding accuracy and volume benchmarks for LLM deployment pipelines.

### Program Manager · Research Infrastructure & Lab Operations · King's College London · London, UK

June 2024 – July 2025

- Managed **\$5M+ annual research infrastructure fund**; achieved **\$2.2M+ cost savings (25%+)** within the first year through PowerBI-driven procurement analytics and vendor negotiations.
- Oversaw strategic planning, contract management, and procurement of scientific equipment and services across 20+ departments.
- Led cross-functional projects with academics, suppliers, regulatory bodies, and estates teams; delivered 10+ complex facility upgrades on time and within budget.

### Technical Manager · Lab Operations · Biomedical Engineering & Imaging Sciences (BMEIS) · King's College London · London, UK

November 2022 – June 2024

- Led daily operations for **100+ scientists** across BSL-2 molecular biology, tissue culture, chemistry, histology, and radioisotope labs in a cancer research centre; **99%+ audit readiness** with zero safety incidents.
- Implemented LIMS (FreezerPro) managing **10,000+ human tissue and blood samples**; ensured full data integrity. Authored and validated 20+ SOPs for core facility equipment and complex assays; trained 50+ scientists and technicians.
- Certified Biological Safety Supervisor, HTA & Radiation Protection Advisor; designed and implemented all EHS programs (Chemical Hygiene Plan, BBP, hazardous waste) meeting UK/EU/USA regulatory standards.
- Led facility upgrades, equipment validation; coordinated with external auditors & regulatory bodies.

### Freelance Content Researcher · Nexus Consulting India · Mumbai, India

July – September 2022

- Consultant content researcher for *Kaun Banega Crorepati* (KBC) 2022 — question construction and accuracy verification for a highly popular English/Hindi bilingual TV quiz show.

### Scientific Editor · Medical Writing · Cactus Communications · Mumbai, India

January – June 2022

- Scientific and technical editorial reviewer for publication-quality medical writing documents including manuscripts, thesis drafts, and books.

**Staff Research Associate II · DNA Sequencing Core** · University of California, Berkeley · CA, USA

August – September 2021

- Managed high-throughput DNA/RNA sequencing workflows serving 50+ researchers; expert in Beckman Coulter Biomek (NX/FX) and ABI 3730XL; maintained **95%+ facility uptime**.
- Performed QC, demultiplexing, de novo assembly; consulted 50+ researchers on experimental design, genotyping, and sequencing strategies.

**Postdoctoral Research Scientist · Lab Operations Lead** · Auburn University & Mississippi State University ·

USA

December 2018 – July 2021

Auburn University, Auburn AL (Aug 2020 – Jul 2021) · Mississippi State University, Starkville MS (Dec 2018 – Aug 2020)

- Co-led design, setup, and launch of a new NSF-funded research lab from scratch; procured, installed, and validated **\$500K+ in equipment** (microscopy, imaging, molecular biology); established inventory, chemical safety, and workflow systems.
- Led CRISPR-Cas9 research program: performed **2,000+ microinjections**, designed KO experiments across **15+ genes in 3 insect species**; optimised protocols improving efficiency and reproducibility.
- Assembled de novo transcripts and conducted differential gene expression analysis using R bioinformatics pipelines. Conducted advanced confocal microscopy and immunostaining to identify developmental targets; generated publication-quality data.
- Peer-reviewed manuscripts for *Nature Communications* and *Journal of Experimental Biology*. Mentored 6 undergraduate researchers.
- Participated in NCGAS Supercomputing Workshop, Indiana University.

**Research Scholar · PhD Candidate, Monteiro Lab** · National University of Singapore · Singapore

August 2013 – Jun 2018

- Designed, led, and conducted morphological evolution experiments in butterflies → **4 first-author publications** in MBE (x2), eLife, and Journal of Insect Science.
- Managed and mentored 3 senior undergraduate students during honours projects, contributing to 2 peer-reviewed publications.
- Presented research and established collaborations at international conferences across Asia and Europe.

**MS Candidate · Babu Lab** · IISER Mohali · India

May 2012 – June 2013

- Designed and tested a learning-based behavioural assay in *C. elegans*; preliminary results contributed to a USD 600,000 research grant and one peer-reviewed publication.

**Research Intern · Sonawane Lab** · Tata Institute of Fundamental Research · Mumbai, India

May – July 2011

- Designed and developed annexin mutant transgenic lines in zebrafish to understand epithelial development.

## TEACHING & MENTORING

**Teaching Assistant · Life Sciences (4 UG + 1 Graduate module)** · National University of Singapore · Singapore. August 2013 – June 2018

Student feedback: **4.5 / 5.0**

- *Evolutionary Biology* (LSM1105) — A/P Antónia Monteiro, A/P Ryan Chisolm (Fall 2016)
- *Writing in Biological Sciences* (BL5231) — Assoc. Prof. David Kellogg (Summer 2015)
- *General Physiology* (LSM1104) — Prof. Alex Ip Yuen Kwong (Spring 2015, Fall 2014)
- *Biodiversity* (LSM1103) — Dr Ng Ngan Kee (Spring 2014)

**Honours Student Supervisor** · National University of Singapore · Singapore 2014 – 2017

- Manizah Huq (2016–17) — Project contributed to Huq, Bhardwaj and Monteiro 2019, J Insect Sci
- Swit Yee Ng (2015–16) — Project contributed to Ng, Bhardwaj and Monteiro 2017, J Insect Sci
- Melissa Teo Hui Jing (2014–15)

**Research Mentor · Undergraduate Supervision** · Auburn University & Mississippi State University · USA

December 2018 – July 2021

- Trained and mentored 6 undergraduate students in experimental design, data analysis, scientific writing, and conference-style presentations.

## ORAL PRESENTATIONS

### Conference Talks

**Jul 2016** **Bhardwaj S.** *Evolution of Phenotypic Plasticity in Butterflies*. Euro Evo-Devo, Uppsala, Sweden.

**Dec 2015** **Bhardwaj S.** 20th Biological Sciences Graduate Congress, Bangkok, Thailand.

**Dec 2014** **Bhardwaj S.** 19th Biological Sciences Graduate Congress, Singapore.

**Jul 2014** **Bhardwaj S.** Insect-Spider Symposium, National University of Singapore.

### Invited Public Talks & Outreach

**2019** **Bhardwaj S.** *How do butterfly wings get their colour?* School outreach talk, Starkville, MS, USA.

**2017** **Bhardwaj S.** *Biology of Butterflies*. Entopia — Penang Butterfly Farm, Malaysia. Also created demonstration videos for general audiences (Feb 2017).

## POSTER PRESENTATIONS

**Sep 2017** TLL-NAIST Joint Symposium 2017, TLL Singapore.

**Jun 2017** ISDB 2017, Singapore.

**Dec 2016** 21st BSGC, University of Malaya, Kuala Lumpur, Malaysia.

**Mar 2016** CDB Symposium 2016: Size in Development, RIKEN Centre for Developmental Biology, Kobe, Japan.

## GRANTS, AWARDS & FELLOWSHIPS

### Research Grants & Fellowships

**2020** Texas EcoLab Research Grant, co-PI. USD 21,000. Declined due to COVID-19 travel restrictions.

**Sep 2017** Fellowship, Molecular Biosystems Conference, Chile. Declined due to scheduling conflicts.

- Dec 2016** Travel Award, 21st BSGC, University of Malaya, Kuala Lumpur, Malaysia.
- Jul 2016** DBS Conference Travel Grant, Euro Evo-Devo 2016, Uppsala, Sweden.
- Mar 2016** Asia-Pacific Developmental Biology Network Grant, CDB Symposium, Kobe, Japan.
- Dec 2015** Travel Grant, 20th Biological Sciences Graduate Congress, Bangkok, Thailand.
- Sep 2014** Travel Grant, International Summer School on Phenotypic Plasticity, Germany. Declined due to visa.
- 2013–2018** NUS Research Scholarship, Ministry of Education, Singapore. Total: USD 165,000.
- 2008–2013** KVPY Scholarship, Govt. of India — Top 15 of 50,000+ applicants.

### Awards & Honors

- 2024, 2023** Nominated, Outstanding Technical Services Support Award — FoLSM Staff Awards, King's College London.
- 2018** Finalist, Schmidt Science Fellowship — among the 100 most promising PhD graduates across top 25 universities.
- 2013–2018** International quiz champion: Tata Crucible (2016), TAPMI Quiz on The Beach (2017, 2018), Tata Crucible Singapore (2013–2018) among 10,000+ teams.
- 2016** Gold Medal, Science — Asian Quizzing Championship.
- 2011** Academic Excellence Award for best academic performance, IISER Mohali.

### LEADERSHIP & SERVICE

- 2022–2024** Led team of research technicians and interns to train and integrate new hires at King's College London.
- 2018–2020** Led outreach efforts teaching school students about nature, butterflies, and conservation through workshops and lab sessions.
- 2015–2018** Secretary, DBS Graduate Students' Society, NUS : led faculty dialogues; organised invited colloquium series. Coordinator, Colloquium Committee (2016); Core Member (2014).
- 2009–2013** Co-founder, IISER Mohali Quiz Club : built operational frameworks and a self-sustained competitive quizzing and learning ecosystem.
- 2011–2013** Volunteer, Youths' Attempt to Nurture (YATN), Mohali, India : education and healthcare for children.

### TECHNICAL SKILLS

**Molecular & Cell Biology:** DNA/RNA Manipulation & QC, PCR, qPCR, Cloning, Molecular Evolution, ChIP-Seq, CRISPR-Cas9, Transgenic Lines (Zebrafish, Butterflies), ISH/FISH, Immunostaining, Mammalian Tissue Culture

**Biochemistry & Assays:** Protein Chemistry, Lipid Analysis, Hormone Assays, Assay Design & Optimisation (DOE), Behavioural Assays (*C. elegans*),

**Genomics & Sequencing:** High-Throughput Sequencing (ABI 3730XL), NGS Data Analysis, de novo Assembly, Transcriptomics, RNA-Seq, Library Preparation

**Microscopy & Instrumentation:** Confocal (Leica/Zeiss), Keyence, EVOS, Fluorescence Microscopy, Lab Automation & Robotics (Beckman Coulter Biomek (NX/FX), Opentrons, Hamilton)

**Data Analysis:** R, Python, SPSS, PowerBI, GraphPad Prism, FIJI/ImageJ, IMARIS, Adobe Photoshop/Illustrator, Biostatistics, Phylogenetic Comparative Methods

**Lab Operations:** LIMS/ELN (FreezerPro), Equipment Procurement & Validation, SOP Development, EHS (BSL-2, Radiation Safety, Hazardous Waste), Budget Management (\$10M+)

### CERTIFICATIONS

Certified Biological Safety Supervisor (UK/EU/USA) · · Biological Safety : Management & Practice  
Radiation Safety Officer · Chemical Safety & Hazardous Waste Management