

# Himal Shrestha

PHD, BIOINFORMATICS

La Trobe University

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*As a PhD graduate in Bioinformatics with expertise in computational and mathematical modelling, I am passionate about using data to predict, prevent, and eliminate diseases. My research at La Trobe University involved studying the transmission of parasitic disease, called river blindness, by integrating genomic, environmental, and epidemiological data with a variety of modelling and analytical approaches. I am now seeking new opportunities that will enable me to utilise and expand my current skill sets.*

## Education

### PhD in Bioinformatics

LA TROBE UNIVERSITY

Melbourne, Australia

2019-2023(submitted)

- **Thesis:** Geospatial modelling of onchocerciasis transmission.

### Master of Biotechnology and Bioinformatics

LA TROBE UNIVERSITY

Melbourne, Australia

2017-2019

### Bachelor of Science in Human Biology

KATHMANDU UNIVERSITY

Dhulikhel, Nepal

2012-2016

## Skills

### COMPUTATIONAL SKILLS

- Programming languages: R, Python, MATLAB, Linux Shell, Bash, Julia, javascript and C
- GIS softwares: Earth Engine, QGIS
- Markup and version control: LaTeX, Markdown, YAML, Git, GitHub, Bitbucket, VSCode
- Bioinformatics databases: NCBI, UniProt, EMBL-EBI, DDBJ, Wormbase and Vectorbase
- Miscellaneous: High Performance Computing Clusters, Cloud computing with AWS and Oracle-Cloud, RShiny, SPSS, Origin, Microsoft packages

### WET LAB SKILLS

- Samples: Clinical (blood, sputum, urine), microbiological (bacteria, fungus) and molecular samples (protein, RNA, plasmid and DNA)
- Molecular techniques: DNA and plasmid extraction, Gel Electrophoresis, SDS PAGE, ELISA, Cloning with restriction endonuclease, Primer Design for PCR, Protein separation with IMAC

### ORGANIZATIONAL SKILLS

- Initiated a contract research organisation called, [Anka Analytica](#) with a group of post-docs in Australia
- Active committee member: PAM-HDR (2020), COMBINE-AU (2020-2022)

### COMMUNICATION SKILLS

- Verbal: presentations in seminar, conferences, teaching and co-host of a podcast, [Science ka Kura](#)
- Written: journal articles, thesis, newsletters at student societies (PAM-HDR, COMBINE) and report writing

## Employment

### Post-doctoral researcher (Bioinformatics/infectious disease modelling)

LA TROBE UNIVERSITY

Melbourne, Australia

Apr, 2023-Ongoing

- Formulating empirical and/or mechanistic transmission models utilising genomic, environmental and epidemiological data and supervise students working on related research.

### Casual academic

LA TROBE UNIVERSITY

Melbourne, Australia

Feb, 2020-Oct, 2022

- BIO5INF (Bioinformatics), BIO1MGC (Molecules, Genes and Cells), and BIO1EEB (Ecology, Evolution and Biodiversity)
- La Trobe Outreach Demonstrator: Bytesize Bioinformatics

### Research assistant

LA TROBE UNIVERSITY

Melbourne, Australia

Jul-Aug, 2019

- Performed analysis of embryogram and skin snip data of female *Onchocerca volvulus* parasite

### Lecturer

PURBANCHAL UNIVERSITY

Bhaktapur, Nepal

Jan-Jun, 2017

- Anatomy and Physiology, Pharmacology and Toxicology

## Awards

### Best poster prize

ASIA PACIFIC CONSORTIUM OF MATHEMATICS FOR INDUSTRY

Melbourne, Australia

2022

### ASTMH Young Investigator Award (First-tier Mention)

AMERICAN SOCIETY OF TROPICAL MEDICINE & HYGIENE

Seattle, Washington, United States

2022

### The Jenny Graves Prize for best student short presentation

GENETICS SOCIETY OF AUSTRALASIA

ComBio22, Melbourne, Australia

2022

### LTU Postgraduate Research Scholarship (LTUPRS) Award

LA TROBE UNIVERSITY

Melbourne, Australia

2019-2023

### Pro Vice Chancellor's Commendation 2018

LA TROBE UNIVERSITY

Melbourne, Australia

2019

## Research grants

### Co-investigator/Sub-awardee

UNICEF/UNDP/WORLD BANK/WHO SPECIAL PROGRAMME FOR RESEARCH AND TRAINING IN TROPICAL DISEASES (TDR/WHO)

(US\$108,000)

2021-2022

- **Project:** Population genetic tools for onchocerciasis control programmes to determine transmission zones.

## Publications

### JOURNAL PUBLICATIONS

- **Shrestha H**, McCulloch K, Hedtke SM, Grant WN. Geospatial modeling of pre-intervention nodule prevalence of *Onchocerca volvulus* in Ethiopia as an aid to onchocerciasis elimination. Cotton J, editor. PLoS Negl Trop Dis. 2022 Jul 18;16(7):e0010620.
- Gyawali P, Tamrakar D, Shrestha A, **Shrestha H**, Karmacharya S, Bhattarai S, et al. Consumer acceptance and preference for brown rice-A mixed-method qualitative study from Nepal. Food Sci Nutr. 2022 Mar 4;fsn3.2803.
- Gyawali P, **Shrestha H**, Pant V, Rimal P, Gautam S. C-reactive Protein to Albumin Ratio among Patients Admitted to Intensive Care Unit of a Tertiary Care Hospital: A Descriptive Crosssectional Study. J Nepal Med Assoc. 2021 Dec 11;59(244):1247-51.
- R Shrestha, DP Subedi, S Adhikari, A Maharjan, **H Shrestha**, GR Pandey (2017). Experimental Study of Atmospheric Pressure Argon Plasma Jet-Induced Strand Breakage in Large DNA Molecules, Plasma Medicine, vol. 7, no. 1. doi:10.1615/PlasmaMed.2017019986
- JTM Shrestha, **H Shrestha**, M Prajapati, A Karkee, A Maharjan (2017). Adverse Effects of Oral Hypoglycemic Agents and Adherence to them among Patients with Type 2 Diabetes Mellitus in Nepal, Journal of Lumbini Medical College, vol. 5, no. 1, pp. 34-40. doi:10.22502/jlmc.v5i1.126

### PREPRINT

- **Shrestha H**, McCulloch K, Chisholm RH, Armoo S, Vierigh F, Sirwani N, et al. Synthesising environmental, epidemiological, and genetic data to assist decision making for onchocerciasis elimination. Epidemiology; 2023 Feb. doi:10.1101/2023.02.14.23285937

### CONFERENCE PRESENTATIONS AND POSTERS

- **H Shrestha**, K McCulloch, SM Hedtke, WN Grant (2021). Geospatial modeling of the baseline *Onchocerca volvulus* nodule prevalence in Ethiopia as an aid to elimination. Poster presentation at ASTMH 2022 Annual Meeting, Seattle Convention Center, United States, 30 Oct - 3 Nov, 2022.
- **H Shrestha**, SM Hedtke, RH Chisholm, WN Grant (2021). Landscape genetics and persistence of Onchocerciasis transmission in Ghana. Lightning talk at ComBio22, Melbourne Convention and Exhibition Centre (MCEC), 27-30 Sep, 2022.
- **H Shrestha**, K McCulloch, SM Hedtke, WN Grant (2021). Geospatial mapping of onchocerciasis prevalence in Ethiopia. Spatial and Temporal Statistics Symposium (STSS), University of Wollongong (Virtual), February 17-19, 2021.
- **H Shrestha** (2019). Elucidating ivermectin's action on reproduction of adult female *Onchocerca volvulus* from embryogram data: the basis for the embryostatic phenotype. PRISM2 Annual Conference, Woodward Conference Centre, Carlton, Victoria, November 12-13, 2019.
- **H Shrestha**, SM Hedtke, K McCulloch, S Wanji, WN Grant (2019). Effect of ivermectin treatment on adult female *Onchocerca volvulus* from embryogram data: evidence for periodicity of reproduction and the basis for the embryostatic phenotype. Oral presentation (15 mins) at annual meeting of Australian Society for Parasitology, Adelaide Convention Centre, South Australia, July 8-11, 2019.
- **H Shrestha**, A Maharjan, S Shrestha (2016). Attitudes Towards Menstruation of Pre-menstruating Adolescent School Girls. Poster presentation at 7th National Conference on Science and Technology, Kathmandu, Nepal, March 29-31, 2016.

## References

### Prof Warwick Grant

Head of Discipline, Genetics

Department of Environment and Genetics, La Trobe University

🏠 Bundoora, Victoria, Australia

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### Dr Shannon Hedtke

Research Fellow

Department of Environment and Genetics, La Trobe University

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