Vinky Wang

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Education

University of British Columbia, Vancouver — Sept 2022 - Nov 2024
Master of Science (MSc.), Statistics
Thesis Title: Extending Hidden Markov Models for Rhythmicity
Supervisor: Nancy E. Heckman

University of Toronto, St. George — Sept 2017 - Nov 2022
Honours Bachelor of Science (HBSc.)
Statistics Major, Mathematics Minor, Human Geography Minor

Research Experience

University of British Columbia — Sept 2022 - Present
Research Assistant
Supervisor: Nancy E. Heckman
- Extending hidden Markov models using smooth functions of time and random effects in state transition probabilities to capture dynamic periodic processes; focusing on applications to circadian rhythms of patients with mood disorders
- Modelling actigraph data — cleaning time-series data, obtaining continuous smooth estimates of state-switching dynamics, estimating state-dependent distributions and decoding states

Canadian Statistical Sciences Institute — Sept 2022 - Present
Student Researcher
Principal Investigators: Vianey Leos-Barajas, Marie Auger-Méthé
- Advancing statistical methods for the analysis of complex biologging data collected from animals and humans
- Meeting annually to identify research areas of further development and hosting training sessions/datathons

University of Toronto — May 2021 - Sept 2022
Student Researcher
Supervisor: Vianey Leos-Barajas
- Implemented a joint reparameterised log-Gaussian Cox process that incorporated environmental covariates and spatial and unstructured random effects to predict aggregation dynamics of sharks
- Modelled UAV aerial data — converted mapping projections, constructed rasters and computational grids at appropriate scale, ran prior sensitivity analysis, and performed model diagnostics

Awards

University of British Columbia

Four Year Doctoral Fellowship (CA $\$18,200 \times 4$; deferred) — 2024-2028

Entrance Scholarship (CA \$8000; deferred) — 2024

Van Eaden & Entrance Scholarship (CA \$5000) — 2022

Talks

Wang, V., Heckman, N. 2022. "Extending Hidden Markov Models for Rhythmicity." Oral presentation in 2025 Eastern North American Region International Biometric Society (invited session)

Wang, V., Leos-Barajas V., May J., Lowe C. 2022. "Point Processes for Leopard Shark Aggregation Patterns." Oral presentation in 2022 International Statistical Ecology Conference

Wang, V., Leos-Barajas V., May J., Lowe C. 2021. "Modelling Leopard Shark Aggregation Dynamics in Emerald Bay, California." Oral presentation in 2021 Toronto Data Workshop

Community

Mentorship Program Nov 2024 - Present
Mentoring first-generation statistics students at UBC

CANSSI & Ocean Tracking Network Nov 2023
Led tutorials and datathon on hidden Markov models

Animal Movement and Distribution Reading Group Sept 2022 - Present
Organising and leading bi-weekly meetings to discuss statistical methods in animal movement and distribution among members in the Department of Statistics and the Institute for the Oceans and Fisheries at UBC

Mental Health Reading Group Sept 2022 - Present
Meeting monthly to discuss statistical methods in mental health field among members in the Department of Statistics at UBC and UofT

HQP Reading Group Sept 2022 - Present
Meeting monthly to discuss statistical methods and computation strategies among members from the Department of Statistics at UBC, UofT, and Dalhousie University

Skills

Technical:
- R: INLA, STAN, shiny dashboards, tidyverse syntax, mapping packages (leaflet, tmap, sp, sf, raster)
- Python, Git, LaTeX, Markdown, ArcGIS
- regular expression, object oriented programming

Languages: English (native), Mandarin (working proficiency)