

# AKSHATA KARNIK

Ann Arbor, MI, 48104 | +1 (733) 510 8980 | [akshatak@umich.edu](mailto:akshatak@umich.edu) | [LinkedIn](#)

## Skills

- RStudio (dplyr, ggplot2, tidyverse, RShiny)
- Python (numpy, pandas, matplotlib, scikit-learn, keras)
- GIS: QGIS, ArcGIS Pro, ERDAS IMAGINE, RStudio (rgdal, raster, lidR, tmap, rayshader)

## Professional Projects

### Cooperative Institute for Great Lakes Research (CIGLR)

Jan 2022 - Present

- Use generalized linear models (RStudio) with microcystin as response variable and environmental data as predictors to identify role of sediment resuspension on harmful algal blooms in Lake Erie
- Fit segmented Bayesian regression to observations from experimental sediment core setup for identifying threshold velocities and shear stress required for resuspension of Microcystis colonies
- Collaborate with four advisors and a team of four to discuss updates and integrate suggestions

### GIS & Natural Resource Application

Sept 2022 - Present

- Assess seasonal & temporal (2015 & 2022) variation in land surface temperatures (LST) and normalized difference vegetation index (NDVI) across different land use land cover types in Thane District, Maharashtra, India, using Landsat 8 OLI/TIRS imagery in ArcGIS Pro
- Developing a web application in RShiny for users to explore LST and NDVI data products generated

### Machine Learning Applications

Sept 2022 - Dec 2022

- Predicted hourly temperatures at 10.5 meter depth in Lake Trout using MLP regressor (scikit-learn) in Python by feature engineering thermal sensor data from Lake Trout
- Identified the strongest feature and predicted landslide occurrence using topographical, geological, & environmental data by comparing accuracy & recall values of six machine learning models

### Master's Thesis

Jan 2016 - June 2016

- Designed and led field surveys in the study area to collect data on the presence of large carnivores, prey species, & anthropogenic disturbances in the Western Ghats, Maharashtra, India
- Determined carnivore habitat-use with occupancy models and collated results for the thesis submitted to the University. Popular article – <https://www.wildcanids.net/blog/archives/05-2019>

## Work Experience

### Coder, The Alliance for the Arts in Research Universities

Nov 2021 - Present

- Cleaning, manipulating, and visualizing data in RStudio to identify patterns of undergraduate student enrollment in arts schools at the University of Michigan, Ann Arbor
- Map locations of the various art assets and spaces on University Campus using GIS methods
- Collaborate weekly with the Project Director by providing updates and incorporating feedback

### Research Assistant, Department of Sociology, University of Michigan

Aug 2022 – Jan 2023

- Geocoded schools across the US to find the number of private, charter, and magnet schools within a 1 - 10 mile radius of each elementary school for 2000 & 2010 using ArcGIS Pro

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## Junior Research Fellow, Bombay Natural History Society

Feb 2019 - Aug 2021

- Designed methodology to conduct point count surveys and collected seasonal bird data in Navi Mumbai International Airport and surrounding areas (~300 Km<sup>2</sup>) during airport construction phase
- Analyzed data in RStudio to determine bird abundance & diversity indices, and compiled biannual reports with a team of two to share results with local government bodies and funding agency
- Planned and executed field surveys along with a team of two, and held regular meetings with project supervisor to discuss project progress and incorporate recommendations

## Project Fellow, Wildlife Institute of India

Sept 2016 - Sept 2017

- Conducted socio-economic surveys to understand peoples' attitudes towards human-wildlife conflict
- Led a team of three in camera trapping at Gorumara National Park in West Bengal to determine leopard densities in landscape mosaic of forests and tea-plantations (~250Km<sup>2</sup>)

## Internship and Volunteer Experience

### Cetacean study in waters of Andaman Islands

Feb 2018 - May 2018

- Assessed the diversity, abundance, and space use using systematic vessel sampling to fill data gaps and assess cetacean presence in waters of Andaman Islands

### Nature Conservation Foundation (NCF), Bengaluru

May 2015 - July 2015

- Assessed leopard distribution across land-use types in Karnataka with camera trap surveys
- Analyzed the impacts that human and cattle disturbances have on wild animals in Male Mahadeshwara Hills Wildlife Sanctuary with camera-trap data

## Educational Qualification

### M.S. in Environment and Sustainability

April 2023

University of Michigan, Ann Arbor

**Specialization:** Geospatial Data Sciences (GDS) | GPA: 3.865/4.00

**Awards:** Master's project fellowship: SEAS - \$1500, CIGLR - \$9000

### M.S. in Environmental Studies & Resource Management

June 2016

TERI School of Advanced Studies, New Delhi, India

**Specialization:** Ecology and Wildlife Studies

**Awards:** Hemendra Kothari Fellowship Grant to carry out project for master's thesis - Rs 60,000

### Bachelor of Science

June 2014

St. Xavier's College – Autonomous, Mumbai, India

**Specialization:** Life Sciences

## Conference Posters

- **Karnik, Akshata**, Chandra Maya Sharma, Dipanjan Naha, GS Rawat and S Sathyakumar. 2017. "Human wildlife conflicts in Northern Bengal: Patterns of human fatalities and injuries by leopards and elephants." The 2nd Himalayan Research Seminar, Wildlife Institute of India, Dehradun, India.
- **Karnik, Akshata** and Girish Punjabi. 2017. "Carnivores in a patchwork: Habitat use in a human dominated landscape." The 8th Student Conf. on Conservation Studies (SCCS), Bangalore, India.