

# DIVIJ SINHA

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## EDUCATION

**University of Chicago, Harris School of Public Policy**

MS in Computational Analysis and Public Policy - GPA 4.0/4.0

Chicago, IL

June 2024

**Birla Institute of Technology and Science, Pilani**

B.E. (Hons) in Electrical and Electronics Engineering; Minor in Politics, Economics, and Philosophy

Goa, India

July 2019

## EXPERIENCE

**Indian Institute for Human Settlements, Urban Informatics Lab**

Bangalore, India

*Research Associate*

September 2019 - August 2022

- Implemented data cleaning, analysis, and modelling using Python and R on multiple research projects, with the goal of creating knowledge relevant for the policy process in the Global South
- Drafted policy briefs, and reports across various thematic areas including migration, employment, economic development, social protection, and child nutrition to provide actionable insights for various national, state and local government bodies
- Built capacity for urban data analysis through designing and teaching 5+ courses for over 100 learners including bureaucrats and Fellows of the Urban Fellows Programme

**Genpact**

Bangalore, India

*Data Science Intern, Reinforcement Learning*

July 2018 - December 2018

- Investigated the application of Reinforcement Learning for the company by taking up the challenge of loading trucks and delivered improvements over the pre-existing solution's fill efficiency and fulfilled client requirements
- Executed from scratch a modified version of the SARSA (Modified Q-Learning) agent algorithm for a Markov Decision Process

**North-Eastern Space Application Centre**

Shillong, India

*Research Intern*

May 2017 - July 2017

- Developed and deployed an Incident Reporting Application for the Northeastern Region of India as a team
- Held responsibilities for developing the backend for pulling data and displaying on a map.
- Developed the app using Ionic Framework and backend using PHP

## PROJECTS

- Developed apps deployed on AWS using flask in Python, and Shiny (R) dashboards to explore domestic migration patterns built from national datasets such as the Census of India, 2011
- Created national level estimates of district-to-district migration to bridge data availability and quality gaps in publicly available datasets, and predicted future fertility and mortality rates to 2051 for 5-year population projection intervals for age-sex cohorts
- Produced a confidential district-level risk analysis report for the National Disaster Management Agency in the Govt of India in March 2020 for the COVID-19 pandemic exploring the spread potential, the impacts and the response capacity
- Presented the preliminary analysis of the discrepancies in child health indicators across Karnataka using DHS survey data at a webinar with over 200 attendees, to a panel with experts from UNICEF and NITI-Aayog
- Wrote multiple policy briefs and analyzed publicly confidential government datasets for the Rajasthan Chief Minister's office on rethinking urban employment and reframing social security and benefits in the aftermath of the COVID-19 pandemic

## RESEARCH, PUBLICATIONS AND CONFERENCE PRESENTATIONS

- "Reproducing a Household: Recognising and Assessing Paid and Unpaid Domestic Work in Urban India", ILO, IIHS, 2023
- "Deficits in Decent Work: Employer Perspectives and Practices on the Quality of Employment in Domestic Work in Urban India", ILO, IIHS, 2023
- "Employer Practices and Perceptions on Paid Domestic Work: Recruitment, Employment Relationships, and Social Protection", ILO, IIHS, 2023
- "Predicting Operative Temperature with Machine Learning (ML)", IBPSA-England's Building Simulation and Optimisation Conference 2022, University of Bath
- "Implementing at-scale adaptive thermal comfort controls for mixed mode building using machine learning", Independence and Interdependence of Sustainable Spaces, FARU '22, University of Moratuwa
- "Policy Study in managing the Urban Informal Sector", Non-public report for the Chief Minister's Rajasthan Economic Transformation Advisory Council, Government of Rajasthan

## SKILLS

**Python** - pandas, geopandas, numpy, statsmodels, scikit-learn, matplotlib, seaborn, beautifulsoup, requests, flask, sqlalchemy

**R** - tidyverse, ggplot, sf, leaflet, generalized linear models, survey models, shiny

**Primary Data Sources** - Sampling Design; Survey Data Analysis - self run surveys and nationally representative official surveys

**Secondary Data Sources** - Large scale tabular and spatial data; Census, NSS (India), NFHS, DHS surveys

**Statistics** - Exploratory Data Analysis; Descriptive and Inferential Statistics; Econometrics

**Data Science** - Data Analytics, Data Visualization, Web Scraping, Spatial Data, Tableau, Applied Machine Learning, Git, SQL

**Microsoft Office Suite** - Excel, PowerPoint, Word