

DIVIJ SINHA

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EDUCATION

Harris School of Public Policy, University of Chicago

MS in Computational Analysis and Public Policy

Chicago, IL
Expected June 2024

Birla Institute of Technology and Science, Pilani

B.E. (Hons) in Electrical and Electronics Engineering

Goa, India
July 2019

- GPA 7.34/10
- Minor in Politics, Economics, and Philosophy - GPA 8.17/10

EXPERIENCE

Indian Institute for Human Settlements, Urban Informatics Lab

Research Associate

Bangalore, India
September 2019 - August 2022

- Developed a Shiny app (R) dashboard to explore domestic migration patterns across education, reason of movement, gender etc. built from national datasets such as the Census of India, 2011
- Created national level estimates of district-to-district in-migration and out-migration to bridge data availability and quality gaps in publicly available datasets to further organisation wide understanding of migration parameters
- Analyzed publicly available and confidential government datasets for the Rajasthan Chief Minister's office on rethinking urban employment and reframing social security and government benefits in the aftermath of the COVID-19 pandemic
- Guided the data analysis effort for an International Labour Organisation project studying trends in domestic worker hiring involving a 12,000+ response multi-city survey
- Investigated the discrepancies in child health indicators across Karnataka through the National Family Health Survey (DHS)
- Presented the preliminary analysis at a webinar with over 200 attendees, to a panel with experts from UNICEF and NITI-Aayog
- Predicted future fertility rates, mortality rates, and migration numbers to 2051 for 5-year projection intervals employing Bayesian hierarchical models; then applied outputs to age-sex cohorts to generate population pyramids every 5 years
- Produced a confidential district level risk analysis report for the Govt of India in March 2020 for the COVID-19 pandemic exploring the spread potential, the impacts and the response capacity
- Wrote the section on migration for a policy brief for the XV Finance Commission of India on Urban Infrastructure and Resilience
- Designed, prepared content for, and taught sessions focusing on understanding Indian public data and other data skills in the Data Skill Lab as a faculty member of the Urban Fellows Programme
- Proposed, created, and deployed an internal system on AWS built on Flask in Python for the admissions process of the Urban Fellows Programme. Handled over 20 internal graders concurrently for over 600 applications

Genpact

Data Science Intern, Reinforcement Learning

Bangalore, India
July 2018 - December 2018

- Investigated the application of Reinforcement Learning for the company by taking up the challenge of loading trucks. Delivered improvements over the preexisting solution's fill efficiency and fulfilled client requirements
- Implemented from scratch a modified version of the SARSA (Modified Q-Learning) agent algorithm for a Markov Decision Process. Used Python and related libraries - numpy, pandas, scikit-learn, and statsmodels

North Eastern Space Application Centre

Research Intern

Shillong, India
May 2017 - July 2017

- Learnt App development through the Ionic Framework and PHP, also served as an introduction to GIS and mapping services

RESEARCH & PUBLICATIONS

- "Policy Study in managing Urban Informal Sector", Non-public report for the Chief Minister's Rajasthan Economic Transformation Advisory Council, Government of Rajasthan
- "Reproducing a Household: Recognising and Assessing Paid and Unpaid Domestic Work in Urban India", ILO, IIHS, 2022
- "Deficits in Decent Work: Employer Perspectives and Practices on the Quality of Employment in Domestic Work in Urban India", ILO, IIHS, 2022
- "Employer Practices and Perceptions on Paid Domestic Work: Recruitment, Employment Relationships, and Social Protection", ILO, IIHS, 2022
- "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
- "Predicting Operative Temperature with Machine Learning (ML)", IBPSA-England's Building Simulation and Optimisation Conference 2022, University of Bath

SKILLS

Statistics - EDA; Descriptive and Inferential Statistics

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

R - tidyverse, ggplot, sf, leaflet, generalised linear models, survey models, shiny

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

Secondary Data Sources - Large scale tabular and spatial data

Data Analytics, Data Visualisation, Web Scraping, Spatial Data, Tableau

MS Office Suite - Excel, Powerpoint, Word