

Akhil Kumar

Undergraduate Student

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Canadian Citizen and U.S. L-2Y Visa

Education

Expected June 2027 **Honours Bachelor of Science (HBSc)**, University of Toronto
Majoring in Economics and Minor in Mathematics. Clubs: Poker, Hide & Seek, and Running.
Competed in Citadel Summer Invitational Datathon and Point72 Academy Spring Sessions

Professional Experience

May 2024 to Present **Government of Ontario**, Enterprise Analytics and Insights, Data Science Co-Op
Data Scientist in the [Ministry of Public and Business Service Delivery and Procurement](#)

- Working on prompt engineering and validation for RCR identification in [Ontario's Laws](#) for the [Ministry of Red Tape Reduction](#) alongside data scientists at Microsoft and Accenture
 - Using DSPy and few-shot prompt engineering techniques to count RCRs within sub-sections of all of Ontario's laws while developing model validation KPIs
- Led GIS data analysis of Wastewater data for the [Ministry of the Environment](#)
 - Built an exploratory regression model to identify key external variables (e.g. EI Recipients)
 - Implemented efficient temporal and spatial clustering algorithms (e.g. HDBSCAN)
- Managing hundreds of monthly data requests for the [Ontario Data Catalogue](#) for 2,900+ datasets from 30 ministries in the government, media reporters, and the public (Team of 5)

Research Experience

2020–Present **Harvard University**, Geographic Insights Lab, Researcher
Data Analyst, Reviewed and Wrote Manuscripts, Built Interactive Visuals ([More...](#))

- 14 Peer-Reviewed Publications, 280+ Citations ([Google Scholar](#)), 12+ Data Dashboards
- Cited by the [Supreme Court of India](#), [US Federal Court](#), and US Members of Congress
- India Sustainable Development Goals Co-Author **Lancet Regional Health** ([PDF](#))
 - Featured on major Indian news ([The Hindu](#), [Fortune India](#), [The Wire](#), etc);
- India State Trend over 30 Years (1993-2021), [Google Scholar](#) has Complete List
 - Child Marriage in **Lancet Global Health** ([PDF](#))
 - See Media Coverage in [The Hindu](#), [Economic Times](#), [Forbes](#), and [Indian Express](#)
 - Zero-Food Children in **Lancet eClinicalMedicine** ([PDF](#))
 - Almost 6 million Children aged 6-23 Months had Nothing to Eat
 - Featured on Indian News ([Indian Express](#), [Telegraph](#), etc)
 - Zero-Sanitation (aka Open Defecation) in **Journal of Global Health** ([PDF](#))
 - In 2021, over 238 million people didn't have a Toilet and still Open Defecate
- USA Congressional District Life Expectancy
 - Co-First Author in **Social Science & Medicine** ([PDF](#))
 - Mentioned by [Congresswoman Carolyn Maloney](#) and [Congressman Ro Khanna](#)
- For all other Publications see [Google Scholar](#) and for all other Projects, Dashboards and News Mentions ([Politico](#), [Scientific American](#), etc) see [Lab Website](#)

Past Research Experience

- 2020–2022 **Harvard University**, Center for Geographic Analysis Affiliate
Using Geospatial Analysis, Maps, and GIS to Derive Insights. [Department Profile](#)
- COVID-19 Excess Deaths in the United States
 - First Author in **Annals of GIS** ([PDF](#))
 - Analyzed Excess Deaths in US States for Specific Causes of Death (Alzheimer's, Cancer, Heart Disease, etc)
 - Researched COVID-19's second-order impacts on a [US State Department](#) project

Selected Peer-Reviewed Publications; See Full List Here

- [1] SV Subramanian, **Akhil Kumar**, Thomas Pullum, Mayanka Ambade, Sunil Rajpal, and Rockli Kim. Early-Neonatal, Late-Neonatal, Postneonatal, and Child Mortality Rates Across India, 1993-2021. *JAMA Network Open*, 2024. [PDF](#).
- [2] Jewel Gausman, Rockli Kim, **Akhil Kumar**, Shamika Ravi, and SV Subramanian. Prevalence of Girl and Boy Child Marriage across States and Union Territories in India, 1993-2021: A Repeated Cross-Sectional Study. *The Lancet Global Health*, 2023. [PDF](#).
- [3] SV Subramanian, Mayanka Ambade, Smriti Sharma, **Akhil Kumar**, and Rockli Kim. Prevalence of Zero-Food among Infants and Young Children in India: Patterns of Change across the States and Union Territories of India, 1993–2021. *The Lancet eClinicalMedicine*, 2023. [PDF](#) and [Corrigendum](#).
- [4] Sunil Rajpal, **Akhil Kumar**, Mira Johri, Rockli Kim, and SV Subramanian. Patterns in the Prevalence of Unvaccinated Children across 36 States and Union Territories in India, 1993-2021. *JAMA Network Open*, 2023. [PDF](#).
- [5] **Akhil Kumar***, Yogya Kalra, Weihe Wendy Guan, Vansh Tibrewal, Rupali Batta, and Andrew Chen. COVID-19 Impact on Excess Deaths of Various Causes in the United States. *Annals of GIS*, 2022. [PDF](#) (*First Author).
- [6] Aya Takai*, **Akhil Kumar***, Rockli Kim, and SV Subramanian. Life Expectancies across Congressional Districts in the United States. *Social Science & Medicine*, 2022. (*Co-First Authors) [PDF](#).
- [7] SV Subramanian and **Akhil Kumar**. Increases in COVID-19 are Unrelated to Levels of Vaccination across 68 Countries and 2947 Counties in the United States. *European Journal of Epidemiology*, 2021. [PDF](#) and [Authors' Reply](#).

Technical Skills

Data Analysis

Stata, Python, R
Power Query

Data Visualization

PowerBI, Tableau
D3.js, React

Other Software

ArcGIS Pro, MS Office
Figma, GSuite

Professional References

Fahim Hassan

Senior Manager, Enterprise Analytics and Insights at Government of Ontario

S.V. Subramanian

Professor of Population Health and Geography at Harvard University

Rockli Kim

Professor in Health Policy and Management at Korea University; Co-PI of GI Lab

Wendy Guan

Executive Director, Center for Geographic Analysis at Harvard University