

VARUN GOEL

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CURRENT POSITION

current
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2021

- **Postdoctoral Research Associate**

Carolina Population Center, University of North Carolina

 Chapel Hill, NC

EDUCATION

2021
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2016

- **PhD, Geography**

University of North Carolina

 Chapel Hill, NC

- Title : *Are Deep Tubewells Safe and Equitable? A Geographic examination of Impacts of Deep Tubewell Interventions on Provision of Safe Drinking-water and Diarrheal Diseases in Rural Bangladesh*

2013
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2011

- **M.S., Geography**

University of Illinois

 Urbana Champaign, IL

- Concentration in Health and Medical Geography

2011
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2008

- **B.A. (hons), Geography (minor C.S.)**

University of Illinois

 Urbana Champaign, IL

- Concentration in Geographic Information Science
- Awarded Highest Distinction

RESEARCH EXPERIENCE

2021
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2016

- **Carolina Population Center**

University of North Carolina

- Conducted population health research on multiple NSF and NIH Projects as a pre-doctoral trainee
- Lead and co-authored multiple peer-reviewed publications evaluating spatial determinants of diarrheal diseases in Bangladesh and malaria in Sub-Saharan Africa under supervision of [Dr. Mike Emch](#).
- Conducted analysis and wrote a submitted manuscript with [Dr. Paul Delamater](#) on spatial determinants of vaccine hesitancy in the United States

2016
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2014

- **Indian School of Business**

Hyderabad, India

- I served as the chief data scientist at a research team led by [Dr. Ashwini Chhatre](#) to acquire, process, integrate, visualize and disseminate data-driven products for evidence based resilient rainfed agriculture in India

2013
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2012

- **Center for One Health**

University of Illinois

- Conducted Master's research involving a spatial risk assessment of Epizootic Hemorrhagic Disease among cattle and white-tailed deer in Illinois under supervision of late [Dr. Marilyn O'Hara Ruiz](#)

2011
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2010

- **CyberGIS and Infrastructure Laboratory**

University of Illinois

- Co-led the development of an Ecological Compliance Assessment WebGIS tool named *EcoCAT* at the Illinois Department of Natural Resources under supervision of [Dr. Shaowen Wang](#)

PEER REVIEWED PUBLICATIONS

2021

- **Implementation Approaches for Introducing and Overcoming Barriers to Hepatitis B Birth-Dose Vaccine in Africa**
Global Health Science and Practice Journal (accepted, in press)

- Boisson A, V Goel, Yotebiang M, Parr JB, B Fried, Thompson P

2021

- **Dihydroartemisinin-piperaquine chemoprevention and malaria incidence after severe flooding: evaluation of a pragmatic intervention in rural Uganda**
Clinical Infectious Diseases

- RM Boyce, BD Hollingsworth, E Baguma, E Xu, V Goel, A Brown-Marusiak, R Muhindo, R Reyes, M Ntaro, MJ Siedner, SG Staedke, JJ Juliano, EM Mulongo

2021

- **Malaria prevalence and long-lasting insecticidal net use in rural western Uganda: results of a cross-sectional survey conducted in an area of highly variable malaria transmission intensity**
Malaria Journal

- CM Cote, V Goel, R Muhindo, E Baguma, M Ntaro, BE Shook-Sa, R Reyes, SG Staedke, EM Mulongo, RM Boyce

2021

- **Individual, household and neighborhood risk factors for malaria in the Democratic Republic of the Congo support new approaches to programmatic intervention**
Health and Place

- M Carrel, S Kim, MK Mwandagalirwa, N Mvuama, JA Bala, M Nkalani, G Kihuma, J Atibu, O Diallo, **Varun Goel**, KL Thwai, JJ Juliano, M Emch, A Tshefu, JB Parr

2021

- **SARS-CoV-2 testing in North Carolina: Racial, ethnic, and geographic disparities**
Health and Place

- K Brandt*, V Goel*, C Keeler*, GJ Bell, A Aiello, G Corbie-Smith, E Wilson, A Fleischauer, M Emch, RM Boyce
 - * Joint first author

2021

- **Effectiveness of a national mass distribution campaign of long-lasting insecticide-treated nets and indoor residual spraying on clinical malaria in Malawi, 2018–2020**
BMJ Global Health

- H Topazian, A Gumbo, K Brandt, M Kayange, JS Smith, JK Edwards, V Goel, T Mvalo, M Emch, A Pettifor, JJ Juliano, I Hoffman

2021

- **What is the burden of malaria in the DRC**

Journal of Infectious Diseases

- M Deutsch-Feldman, JB Parr, C Keeler, NF Brazeau, V Goel, M Emch, JK Edwards, M Kashamuka, AK Tshefu, SR Meshnick

2020

- **Considering Alternate Pathways of Drinking-Water Contamination: Evidence of Risk Substitution in Rural Bangladesh**

International Journal of Environmental Research and Public Health

- V Goel, GJ Bell, S Sridhar, Md Islam, Md Yunus, Md Ali, Md Khan, Md Alam, ASG Faruque, Md Kabir, S Babu, K Brandt, V Shelus, MD Sobsey, M Emch

2019

- **Extending multilevel spatial models to include spatially varying coefficients**

Health and Place

- M Janko, V Goel, M Emch

2019

- **False-negative malaria rapid diagnostic test results and their impact on community-based malaria surveys in sub-Saharan Africa**

BMJ Global Health

- OJ Watson, KM Sumner, M Janko, V Goel, P Winskill, HC Slater, A Ghani, SR Meshnick, JB Parr

2019

- **Impacts of household sources on air pollution at village and regional scales in India**

Atmospheric Chemistry and Physics

- B Rooney, R Zhao, Y Wang, KH Bates, A Pillarisetti, S Sharma, S Kundu, TC Bond, NL Lam, B Ozaltun, L Xu, V Goel, LT Fleming, R Weltman, S Meinardi, DR Blake, SA Nizkorodov, RD Edwards, A Yadav, NK Arora, KR Smith, JH Seinfeld

2018

- **Deep tubewell microbial water quality and access in arsenic mitigation programs in rural Bangladesh**

Science of the Total Environment

- V Goel, MS Islam, M Yunus, MT Ali, AF Khan, N Alam, ASG Faruque, G Bell, M Sobsey, M Emch

2017

- **Individual and household characteristics of persons with Plasmodium falciparum malaria in sites with varying endemicities in Kinshasa Province, Democratic Republic of the Congo**

Malaria Journal

- MK Mwandagalirwa, L Levitz, KL Thwai, JB Parr, Varun Goel, M Janko, A Tshefu, M Emch, SR Meshnick, M Carrel



MANUSCRIPTS UNDER REVIEW

2021

- **Race, Place, and HIV: The Legacies of Apartheid and Racist Policy in South Africa**

Social Science and Medicine (under review)

- GJ Bell, J Ncyayiyana, A Sholomon, V Goel, K Zuma, M Emch

2021

- **Provisional entrance, exemptions, and kindergarteners up-to-date on vaccination after a regulatory change in Pennsylvania**

Public Health Reports (under review)

- PL Delamater, V Goel, CN Strack, YT Yang

BOOK CHAPTERS

2021

- **Spatial Epidemiology: Challenges and methods in COVID-19 research**

In: Andrews G.J., Crooks V.A., Pearce J.R., Messina J.P. (eds) COVID-19 and Similar Futures. Global Perspectives on Health Geography. Springer

• V Goel, M Emch

SELECTED CONFERENCE PRESENTATIONS

2021

- Investigating COVID-19 Testing in North Carolina: Racial, Ethnic, and Geographic Disparities

Association of American Geographers, April 7-11 (non presenting author)

 Virtual

2021

- Spillovers and Risk Substitution in Public Health Interventions: A case study of Deep Tubewell Interventions and Diarrheal Disease in Rural Bangladesh

Association of American Geographers, April 7-11

 Virtual

2020

- Are Deep Tubewells Safe Drinking Water Sources? Evidence of Risk Substitution from Rural Bangladesh

UNC Water and Health Conference, Oct 26-30

 Chapel Hill, USA

2019

- Measuring spillover effects from a health intervention in Rural Bangladesh

International Medical Geography Symposium, July 1-6

 Queenstown, NZ

2019

- Climatic Influences on Women's Health and Mobility in Sub-Saharan Africa

Population Association of America, April 11-13 (non-presenting author)

 Austin, USA

2019

- Risk Substitution through Surface Water Use Among Deep Tubewell users in Rural Bangladesh

Association of American Geographers, April 4-7

 Washington D.C, USA

2018

- Does Women's Empowerment Reduce the Negative Effect of Climate Change on Child Health? Empirical Evidence from Households in India

Population Association of America, April 26-28

 Denver, USA

2018

- Impact of Population Modelling Choices on Epidemiological Estimates: Implications for Integrated Disease Control

American Society for Tropical Medicine and Hygiene, Oct 28-30 , (non-presenting author)

 New Orleans, USA

2017

- Finding Safe Drinking Water in Rural Bangladesh – Are Deep Tubewells the Answer?

Association of American Geographers, April 10-14

 New Orleans, USA

2013

- An integrated One Health approach to evaluating the spatio-temporal risk of hemorrhagic disease in cattle in Illinois

URISA GIS and Public Health Conference, Jun 10-12

 Miami, USA

2013

- A spatial risk assessment of hemorrhagic disease in cattle in Illinois from 2005 to 2012,

Association of American Geographers, April 22-25

 Los Angeles, USA

2011

- IMAP: An online GIS tool for disability-friendly pedestrian navigation

Illinois GIS Association Spring Conference, April 1

 Los Angeles, USA

INVITED TALKS AND PANELS

- 2020 • **Spatial and demographic patterns in SARS-CoV-2 testing and test positivity in North Carolina**
Geography Colloquium (Co-presented), Nov 10  Dartmouth College
- 2020 • **SARS-CoV-2 Testing in North Carolina: Racial, ethnic, and geographic disparities**
Working Group Seminar (Co-presented), Nov 19  NC Covid Surveillance Network
- 2020 • **Building Resilience in Water, Sanitation and Hygiene Systems in Developing Countries**
STAR-TIDES Invited Panel Speaker, Oct 20  George Mason University
- 2020 • **Spatial Components of COVID-19 viral and seroprevalence testing in North Carolina**
School of Forest and Environment Resources Seminar, Oct 19  NC State University
- 2018 • **Examining the Role of Neighborhood Definitions on Spatio-temporal Distribution of Vaccine Refusal in California**
GIS Day Invited talk, Nov 16  Duke University
- 2018 • **Evaluating Deep Tubewell interventions in rural Bangladesh: Implications for both drinking and non-drinking water usage**
Research Seminar, Sep 25  icddr,b Bangladesh
- 2018 • **Mapping Infectious Diseases using R**
Workshop at the *Evolutionary Medicine Summer Institute*, June 7  Duke University
- 2017 • **Globalization and Health**
Guest Lecture, GEOG 110: Geographies of Globalization, Oct 13  UNC Chapel Hill
- 2017 • **Morbidity and Health**
Guest Lecture: Soc 122: Population and Development, March 28  UNC Chapel Hill
- 2013 • **Applications of GIS in Natural Resource Management**
Guest Lecture: Natural Resource Governance in Developing Countries, Oct 29  University of Illinois
- 2012 • **Open-source GIS tools in criminology and health**
Guest Lecture: Geospatial Tech and Society  University of Illinois

TEACHING EXPERIENCE

- 2020 spring • **Course Instructor**
GEOG 215: Introduction to Spatial Data Science  University of North Carolina Chapel Hill
 - Rated 4.85 out of 5 (Full course evaluations available upon request)
- 2013 spring • **Teaching Assistant**
GEOG 105: Digital Earth  University of Illinois, Urbana Champaign
 - Mentioned in *List of Instructors rated as Excellent by their students*
- 2011 fall • **Teaching Assistant**
GEOG 101: Geography of Developing Countries  University of Illinois, Urbana Champaign
 - Mentioned in *List of Instructors rated as Excellent by their students*

OTHER TEACHING EXPERIENCE

2020
March

- **Course Instructor**
Introduction to GIS and Spatial Analysis  Lilongwe, Malawi
 - Co-taught a short course on Introduction to GIS and Spatial Analysis to doctors and public health researchers as part of the Malawi HIV Implementation and Research Training Program

- **Teaching Assistant**
Data Matters Workshop Series  University of North Carolina Chapel Hill
 - TA for 3 two-day classes on Introductory, Intermediate and Advanced R

2020
december

AWARDS, HONORS & FUNDING

- 2020 ● UNC Graduate School Dissertation Completion Fellowship (\$18,000)
- 2020 ● Melinda Meade Research Award, UNC Geography (\$3000)
- 2019 ● Melinda Meade Graduate Student Summer Award, UNC Geography (\$2000)
- 2019 ● AAG Health and Medical Geography Specialty Group Travel Award (\$500)
- 2018 ● Ona Impact Grant for using innovative digital technology for field data collection (\$1200)
- 2018 ● Geography Summer Award, UNC Geography (\$3000)
- 2018 ● Summer Institute in Statistics and Infectious Disease Modeling scholarship, UW (\$3300)
- 2016 ● UNC Doctoral Recruitment Merit Assistantship (\$20,000)
- 2013 ● Schlesinger Travel Award, UIUC School of Earth, Society and Environment (\$600)
- 2011 ● Jerome D Fellman Award, for outstanding honors thesis and highest distinction
- 2011 ● Outstanding Senior in Geography Award, Illinois Geographical Society
- 2011 ● ESRI Development Center (EDC) Scholarship, ESRI (co-shared) (\$500)
- 2011 ● 1867 Society Fund Award, UIUC (shared) (\$1100)
- 2011 ● Howard Roepke Undergraduate Research Scholarship, UIUC Geography (\$3000)

SKILLS

- **Analytical**
GIS, remote sensing, spatial statistics, geostatistical modeling
- **Programming**
R (*advanced*), Python, Matlab, Bash
- **Software/Tools**
R, ArcGIS, QGIS, Stata, GIT, AWS, PostGIS



DEPARTMENTAL SERVICE

2020
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2017

- **Treasurer**
Geography Association of Graduate Students

📍 University of North Carolina Chapel Hill

2017
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2016

- **Graduate Student Representative, Geography**
Graduate Professional Student Federation

📍 University of North Carolina Chapel Hill

2013

- **Chair**
Society of Earth Systems and Environment Research Review

📍 University of Illinois, Urbana Champaign



REVIEWER ASSIGNMENTS

- Health & Place
- Malaria Journal
- Bulletin of the World Health Organization
- Science of the Total Environment
- American Journal of Public Health



MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Association of American Geographers
- Population Association of America
- American Society of Tropical Medicine and Hygiene



LANGUAGES

- **English**
Fluent
- **Hindi**
Native Speaker
- **Mandarin**
Conversational