

VARUN GOEL

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EDUCATION

current
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2016

- **PhD. Candidate, Geography**
University of North Carolina 📍 Chapel Hill, NC
 - Advisor : Dr. Mike Emch
 - Title : *Quantifying Spatially Heterogenous and Spillover effects of Deep Tubewell Interventions on Diarrheal Disease 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

current
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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

2020

- **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**

Science of the Total Environment

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

MANUSCRIPTS UNDER REVIEW

- 2020 • SARS-CoV-2 Testing in North Carolina: Racial, ethnic, and geographic disparities
Health and Place (revise and resubmit)
• K Brandt*, V Goel*, C Keeler*, GJ Bell, A Aiello, M Emch, R Boyce
• * Joint first author
- 2020 • Effectiveness of a National Mass Distribution Campaign of Long-Lasting Insecticide-Treated Nets on Clinical Malaria in Malawi, 2018–2020
Lancet Global Health (under review)
• H Topazian, A Gumbo, JK Edwards, K Brandt, V Goel, M Emch, I Hoffman
- 2020 • Provisional entrance, exemptions, and kindergarteners up-to-date on vaccination after a regulatory change in Pennsylvania
American Journal of Preventive Medicine (under review)
• PL Delamater, Varun Goel, CN Strack, YT Yang
- 2020 • Individual, household and neighborhood risk factors for malaria in the Democratic Republic of the Congo support new approaches to programmatic intervention
Health and Place (under review)
• 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

BOOK CHAPTERS

- 2021 • Spatial Epidemiology: Challenges and methods in COVID-19 research.
COVID-19 and Similar Futures: Pandemic Geographies, Routledge (accepted, published in spring 2021)
• V Goel, M Emch

SELECTED CONFERENCE PRESENTATIONS

- 2020 • Are Deep Tubewells Safe Drinking Water Sources? Evidence of Risk Substitution from Rural Bangladesh
UNC Water and Health Conference, Oct 26-30 
- 2019 • Measuring spillover effects from a health intervention in Rural Bangladesh
International Medical Geography Symposium, July 1-6 
- 2019 • Climatic Influences on Women's Health and Mobility in Sub-Saharan Africa
Population Association of America, April 11-13 
- 2019 • Risk Substitution through Surface Water Use Among Deep Tubewell users in Rural Bangladesh
Association of American Geographers, April 4-7 
- 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 
- 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) 

- 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	<ul style="list-style-type: none"> ● Teaching Assistant <i>GEOG 105: Digital Earth</i> <ul style="list-style-type: none"> • Mentioned in <i>List of Instructors rated as Excellent by their students</i> 	 University of Illinois, Urbana Champaign
2011 fall	<ul style="list-style-type: none"> ● Teaching Assistant <i>GEOG 101: Geography of Developing Countries</i> <ul style="list-style-type: none"> • Mentioned in <i>List of Instructors rated as Excellent by their students</i> 	 University of Illinois, Urbana Champaign

🏆 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 2017	<ul style="list-style-type: none"> ● Treasurer Geography Association of Graduate Students 	 University of North Carolina Chapel Hill
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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