

Relevant Work Experience

Teaching Assistant (August 2019 – present)

Led recitation and lab sessions for graduate and undergraduate level courses. Courses: Planning Methods, Urban Data Analytics with R, Introduction to Environment and Society, Personal Finance
Department of City and Regional Planning, University of North Carolina at Chapel Hill

Research Assistant (August 2020 – December 2020)

Used data science skills to help build a data dashboard to track COVID response and recovery through web scraping, managing data streams for multiple economic indicators, co-designing data aggregation to visualization pipelines, data cleaning, processing, and summarizing to create economic and housing indicators
Carolina Tracker (<https://carolinatracker.unc.edu>)
Department of City and Regional Planning, University of North Carolina at Chapel Hill

Teaching Assistant (December 2020)

Assisted data science instructors in teaching Intro to Python, Intermediate Python, Data visualization with Python
Data Matters 2020, The National Consortium for Data Science

Research Assistant (March 2017 – August 2019)

Assisted PI on a USAID funded NSF grant “Expansion and Use of Open Mapping as Digital Infrastructure for Sustainable Development” in which I led three rounds of virtual internship programs as action research on OpenStreetMap contribution, co-authored peer-reviewed publications and conference papers/talks
Kathmandu Living Labs

Consultant (October 2016 – February 2017)

Designed and built appropriate technology including CNC woodcutter, biomass gasifier/charcoal maker, material transport systems, etc. and facilitated three batches of course on participatory design for undergraduate students
International Network for Bamboo and Rattan (INBAR), Adobe and Bamboo Research Initiative (ABARI)

Education

PhD in City and Regional Planning (2019 - 2024)

Dissertation focus: applications of emerging machine learning techniques (Conditional GANs, Causal Forest, NLP Transformers) in energy planning
Department of City and Regional Planning
University of North Carolina at Chapel Hill

Master’s Program in Planning and Operation of Energy Systems (2014 – 2017)

Department of Mechanical Engineering, School of Engineering
Kathmandu University

Bachelor of Engineering in Mechanical Engineering (2009 – 2013)

Department of Mechanical Engineering, School of Engineering
Kathmandu University

Skills

Energy Systems Modeling (LEAP, EViews, OSeMOSYS, HOMER),
Data Science (R, Python), Data Visualization (D3.js, Matplotlib, ggplot2),
Machine Learning (Keras, scikit-learn, TensorFlow, PyTorch, FastAI),
Web development fundamentals (HTML, CSS, JS), Git,
QGIS, ArcGIS

Peer-reviewed publications

Wang, Jueyu, Nikhil Kaza, Noreen C. McDonald, and **Kshitiz Khanal**. "Socio-economic disparities in activity-travel behavior adaptation during the COVID-19 pandemic in North Carolina." *Transport Policy* (2022).

Ashish Sedai, Gurmeet Singh, Rabin Dhakal, Aamod Khatiwada, **Kshitiz Khanal**, Binod Kumal, Subash Gautam, Anjay Kumar Mishra. "Technical and Economic Feasibility of a Fully Solar-Powered Airport in Nepal." In 2021 IEEE International Conference on Intelligent Systems, Smart and Green Technologies (ICISSGT). IEEE, 2021.

Khanal, Kshitiz, and Bivek Baral. "Sub-national Energy Access Planning Model for Sustainable Development Goals: A Case Study of Barpak." *Journal of the Institute of Engineering* 15, no. 3 (2019): 183-190.

Khanal, Kshitiz, Nama Raj Budhathoki, and Nancy Erbstein. "Filling OpenStreetMap data gaps in rural Nepal: a digital youth internship and leadership Programme." *Open Geospatial Data, Software and Standards* 4, no. 1 (2019): 1-10.

Dhakal, Rabin, T. R. Bajracharya, S. R. Shakya, B. Kumal, **K. Khanal**, S. J. Williamson, S. Gautam, and D. P. Ghale. "Computational and experimental investigation of runner for gravitational water vortex power plant." In 2017 IEEE 6th International Conference on Renewable Energy Research and Applications (ICRERA), vol. 373, p. 363. 2017.

Dhakal, Rabin, A. Nepal, A. Acharya, B. Kumal, T. Aryal, S. J. Williamson, **K. Khanal**, and L. Devkota. "Technical and economic prospects for the site implementation of a gravitational water vortex power plant in Nepal." In 2016 IEEE International Conference on Renewable Energy Research and Applications (ICRERA), pp. 1001-1006. IEEE, 2016.

Shrestha, Ashish, Ajay Singh, **Kshitiz Khanal**, and Ramesh K. Maskey. "Potentiality of off-grid hybrid systems for sustainable power supply at Kathmandu University campus." In 2016 IEEE 6th International Conference on Power Systems (ICPS), pp. 1-6. IEEE, 2016.

Shrestha, A., A. Ghimire, and **K. Khanal**, and S. Phuyal. "Study of Current Energy Consumption of Dhulikhel Municipality." In *Proceedings of the International Symposium on Current Research in Hydraulic Turbines*. 2016.

Conference Presentations

Kshitiz Khanal, Nikhil Kaza and Noah Kittner. "Improving Energy Infrastructure Information Extraction from Aerial Images Using Conditional Generative Adversarial Networks" (lightning talk and poster presentation, Macro Energy Systems Workshop 2022, Stanford University, June 2022)

Kshitiz Khanal. "Open Science-education begins at home" (presentation, Joint Roadmap for Open Science Tools (JROST) 2020, Remote, December 2020.

Kshitiz Khanal and Bivek Baral, "Sub-national Energy Access Planning Model for Sustainable Development Goals: A Case Study of Barpak" (presentation, 4th International Conference on Renewable Technology for Rural and Urban Development, Kathmandu, Nepal, October 2018)

Kshitiz Khanal. "A new approach to garner prolific contributions in OpenStreetMap" (presentation, State of the Map 2018, Milan, Italy, July 2018)

Kshitiz Khanal. "Mapping as Curriculum" (presentation, Progressive Educators Network Nepal Annual Conference, Kathmandu, April 2017)

Kshitiz Khanal. "Open Mapping Infrastructure for Sustainable Development" (presentation, State of the Map Asia 2017, Kathmandu, Nepal, September 2017)

Book review

Kshitiz Khanal. Review of Urban Operating Systems: Producing the Computational City (2020) by Andres Luque-Ayala and Simon Marvin, Carolina Planning Journal, Vol. 46 (The Whiteness Problem in Urban Planning)

Service

Chairperson, Open Knowledge Nepal (<http://oknp.org>). Currently advisory role and previously executive role in a non-profit open data and open technology advocacy organization based in Nepal (2017-present)

Reviewed research articles for peer-reviewed journals: Renewable Energy (IF 8.001), Sustainable Cities and Society (IF 7.857), Arabian Journal of Geosciences (IF 1.827)

Member of expert working group of Project Resilience MVP of International Telecommunications Union (ITU)'s Global Initiative on AI and Data Commons

Member: Renewable Energy Special Projects Committee (RESPEC) at UNC representing PhD students as a voting member to decide on approving in-campus renewable energy project proposals (2021-present)

Member: Citizen-generated Data Working Group for Global Partnership for Sustainable Development Data (2017-2019)

Organizing committee: State of the Map Asia 2017 (Kathmandu, Nepal)

Organizing committee: National Conference on Energy Economics and Sustainable Development 2015 (Kathmandu, Nepal)

Member: Open Government Working Group for National Information Commission of Nepal, helped formulate Open Government Policy draft for Nepal (2014-2015)

Country reviewer for Nepal – Global Open Data Index 2013, 2014, 2015, conducted by Open Knowledge Foundation

Country reviewer for Nepal – Open Data Barometer 2015, conducted by the Web Foundation

Awards

Duke Energy Analytics PhD Student Fellowship 2022. USD 12,500.

Chi-Rong and Ying-Chong Chu Memorial Fellowship 2022. Awarded by The Graduate School at UNC. USD 5,000.

Summer Professional Development Fellowship, Department of City and Regional Planning at UNC (2020, 2021, 2022). USD 750 each.

Fully funded travel award to attend and co-host a workshop in citizen-generated data in Data for Development Festival 2018 (Bristol, UK)

Fully funded travel award to attend and present in State of the Map 2018 (Milan, Italy)

Best Paper Award, IEEE International Conference on Renewable Energy Research and Application 2017, 5-8 Nov, San Diego, USA

Fully funded travel award to attend Gathering for Open Science Hardware (Geneva, 2015 and Santiago de Chile, 2017) and contribute to develop strategy documents to promote global open science hardware adoption

Mozilla Open Leaders Fellowship (2015)

Fully funded travel and residency in Munich to build modular electric vehicle prototype with graduate students of TU Munich on the BMW funded globalDrive project (2015)

Fully funded travel award by Institute of International Education (IIE) to attend and volunteer in Open Knowledge Festival, Berlin (2014)

Open-source contributions

Mapping and community engagement for **OpenStreetMap**, Editing **Wikipedia**, **Open data related Open Educational Resources** creation for **Open Knowledge Nepal** and personal open-source projects through Github

Other publications (selected)

Kshitiz Khanal. "How analog challenges cripple Nepal government's ambitious 'Digital Nepal' vision." The Kathmandu Post. December 30, 2018. (Op-ed) [Invited]

Rabin Dhakal and **Kshitiz Khanal**. "Encourage innovation." The Kathmandu Post. August 02, 2016. (Op-ed)

Kshitiz Khanal and Nichola Lowe. "What job openings tell us about pandemic employment and the economic recovery." CarolinaTracker. February 9, 2021. (Blog post)

Co-authored **Open Know How** – Open Hardware Documentation Standard <https://www.internetofproduction.org/open-know-how> as part of the association with MakerNet Alliance

Mentoring experience

Mentored Chandan Baba on his project on OpenStreetMap for Mozilla Open Leadership Round 7 (2017)

Mentored three rounds of virtual interns (total 25+) at Kathmandu Living Labs (2016-2018)

References are available if necessary.