

# PHD IN DATA SCIENCES FOR GLOBAL HEALTH

Applicant Brochure



# OVERVIEW

- The PhD program in Data Sciences for Global Health, jointly offered by BITS Pilani and the One Health Trust (OHT), provides full-time, advanced education in global health and data sciences. This program offers training in global health practices, quantitative and qualitative methodologies, and fieldwork.
- Students are advised by experts in infectious disease dynamics, antimicrobial resistance, vaccines and immunization, data sciences, environmental health, gender equity and livelihoods, health and development, health systems, and economics.
- Doctoral candidates spend a period of their tenure at a BITS Pilani campus and another at OHT's headquarters.

Questions? Please contact:

- The OHT team at [PhDprogram@onehealthtrust.org](mailto:PhDprogram@onehealthtrust.org)
- The BITS Pilani team at [dipanjan@hyderabad.bits-pilani.ac.in](mailto:dipanjan@hyderabad.bits-pilani.ac.in)

Application portal: <https://onehealthtrust.org/academic-training/doctoral-program/>

# HOW TO APPLY?

Applications to the PhD program are invited from candidates with a master's degree in any basic science or liberal arts discipline. We also accept applications from candidates with a bachelor's degree in medical, dental, veterinary, or pharmaceutical sciences; alternative health sciences; and engineering. Applicants from other fields are also encouraged to apply.

## **The minimum eligibility requirements for admission are:**

- ME / MTech / MPharm / MBA / MPhil: minimum of 60 percent aggregate
- MSc / BE / BPharm or an equivalent degree: minimum of 60 percent aggregate
- MA: minimum of 55 percent aggregate
- MBBS / BDS / BVSc / MD / MDS / MVSc / BAMS / BHMS / BUMS / allied

## **APPLICATION PACKAGE**

Interested candidates must include the following documents as part of their application:

- A statement of research purpose (maximum two pages) indicating the candidate's academic background, broad research interests, career goals, and how a PhD in Data Sciences for Global Health from BITS Pilani-OHT will advance their career goals.
- Two letters of recommendation

# SELECTION PROCESS

The shortlisted applicants will be interviewed about their knowledge of global health, data sciences, and research interests. OHT will participate in the interviewing panel. There will be no written exam, but grades from previous written exams will be considered.



Each academic year has two semesters, structured as follows:

## COURSE STRUCTURE

### Year One (first and second semester)

The students must complete six courses covering three main subjects (totaling 24 credits):

- Global Health
- Data Sciences
- Health Economics and Policy

The coursework for the first year will help students build a strong theoretical foundation in global health and equip them with skills in data sciences.

The first year will be conducted at BITS Pilani.

A qualifying exam will be held at the end of the first year and will be jointly given by BITS Pilani and OHT. The qualifying exam will align with the coursework and will include a written test and viva. Students will be promoted to the second year only if they pass in at least two of their main subjects. The students must maintain a minimum grade of D and CGPA of 5.50 throughout all semesters.

### PhD in Data Sciences for Global Health

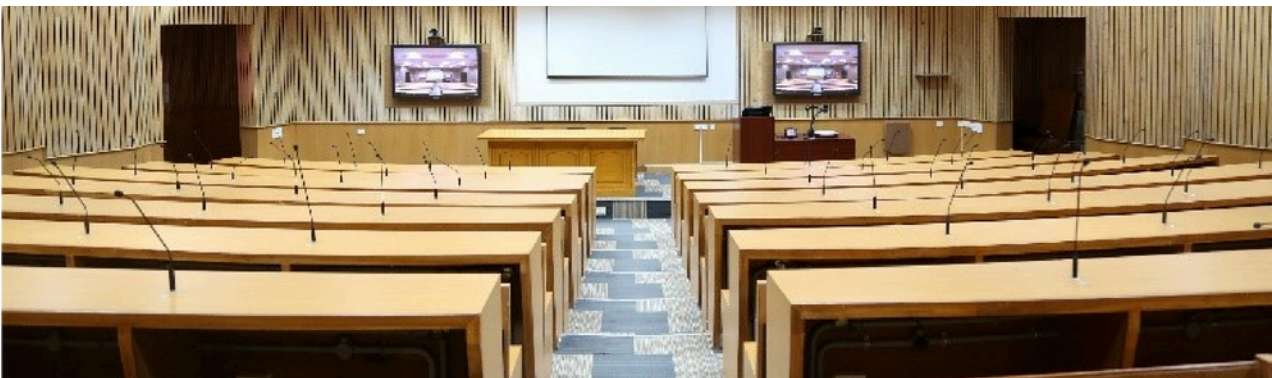
## **Year Two (third and fourth semester)**

The second year will be conducted at BITS Pilani and OHT headquarters. Students are strongly encouraged to find potential advisor(s). Their main advisor will be from BITS Pilani, while the co-advisor will be from OHT. Students will also choose a two-member doctoral advisory committee (DAC) from the faculty members of BITS and OHT.

Students will draft a detailed research proposal to undertake thesis work and submit to their advisory committee for review. Students should take independent study/classes from faculty members from BITS Pilani or OHT in their research areas of interest (directed individual study) as they work on their research proposal and papers.

A rotation method can be used to learn from various faculty members. Students are also encouraged to learn grant writing from their supervisor(s) and apply for research grants. At the end of each semester, students are expected to submit term papers based on their research.

A candidacy/oral exam will be held at the end of the second year. The exam will include an oral presentation on the research proposal developed during the academic year. The proposal will be defended in the presence of a peer group and faculty of the concerned departments. Following the approval, students can register their proposal for thesis units (maximum of 10 units per semester). A minimum of 40 thesis units should be completed to submit the thesis for examination.



### **Year Three through finishing the PhD program (fifth semester and beyond)**

Year three marks the commencement of the fifth semester. Students are expected to present their progress at least twice each semester to their supervisors and their DAC. They are also expected to submit progress reports to their respective DAC members at least once per semester. Students are encouraged to present their research at seminars or conferences organized by BITS Pilani, OHT, and elsewhere.

**Field Work:** Students are encouraged to undertake field visits depending on their thesis topic. They may conduct quantitative or qualitative data collection corresponding to their research interests.

**Dissertation Defense:** Student will prepare their thesis in consultation with their team of supervisors and present/defend to their DAC. They will be required to write three research papers (which will form their dissertation) and publish in peer-reviewed journals to graduate.

### **Degree completion**

To complete the PhD program, students must submit their thesis report within five years of starting their research. Students may be allowed to seek an extension from the doctoral counselling committee, based on project requirements and individual circumstances.

## **FINANCIAL AID**

All admitted students will have financial support through the following two sources:

- Self-funded fellowships: UGC/CSIR NET JRF, DBT JRF/SRF, ICMR JRF/SRF, DST Inspire Fellowships, or
- BITS-OHT doctoral fellowships: Students will receive a BITS Pilani Fellowship of Rs. 34,000 per month in their first year. Based on their performance and output, this amount may be increased during their time at BITS Pilani.

# CAREER OPPORTUNITIES

Public health is a data-driven field. With data diversity rapidly increasing, the demand for public health data scientists with expertise in collating and managing complex and granular health data is on the rise. There is also an urgent need to effectively communicate these results to stakeholders and policymakers.

This program is ideal for students who are seeking new roles as public health data scientists in governance, nonprofit, and for-profit organizations in public health, and biomedical institutions. Working professionals already employed in such organizations who would like to use data more effectively to advance their missions can also benefit from this program.

Upon graduating, students are expected to:

- understand potential sources of bias in data sources relevant to public health;
- formulate data-driven questions using existing data sources;
- manipulate and transform data to perform meaningful analyses;
- apply appropriate statistical methods to draw scientific conclusions from data;
- apply methods for big data to reveal patterns, trends, and associations;
- visualize and interpret data;
- and succinctly communicate results and findings.

A partnership between one of the top technology institution programs in the world and a leading health research think tank, the BITS-OHT program fosters distinctive skills in graduates to thrive in competitive career environments.

This course offers an excellent platform for exciting career opportunities. Students have the opportunity to perform research in the real world, with a range of exciting possible projects, including positions in data science and artificial intelligence (AI) in large pharmaceutical and health data companies.

# ABOUT ONE HEALTH TRUST

We live in an interconnected world: the health and well-being of the environment, animals, and humans are intertwined in ways that are becoming increasingly apparent. Tackling today's greatest challenges— whether climate change, pandemics, or drug resistance— requires an approach that recognizes these relationships.

The One Health Trust (OHT), which was founded as the Center for Disease Dynamics, Economics & Policy (CDDEP) in 2010, uses research and stakeholder engagement to improve the health and well-being of our planet and its inhabitants. For more than a decade, OHT researchers have conducted vitally important work on major global health challenges, including Covid-19, antimicrobial resistance, hospital infections, tuberculosis, malaria, pandemic preparedness and response, vaccines, medical oxygen shortages, and noncommunicable diseases. OHT's mandate includes issues related to climate change, biodiversity protection, and the effect of changing human diets on the planet.

Nimai Valley, OHT's future headquarters, will house students when they move to Bangalore.

## NIMAI VALLEY

*“The campus is surrounded by forest land on three sides and it's agricultural land on the fourth side. A place as beautiful as this demands a beautiful campus. We are building about 20,000 sq. ft of office area and 20,000 sq. ft of accommodation, all of which is designed in a manner to be close to nature. Of the ten acres, a quarter of the property is returning the land to forest land. So, the actual campus building is surrounded by forest, agriculture, and water bodies.”*

- President of the One Health Trust, Dr. Ramanan Laxminarayan

Set on 10 acres in a breath-taking valley in Nandi Hills in Karnataka (India) surrounded by forest and farmland, it is located just 40 minutes north of Bangalore International Airport. The Nimai Valley Center brings together the natural environment, agriculture, animals, and human health in the spirit of One Health. It is in a natural setting to inspire global conversations, ideas, and action.

The center will span 42,000 sq. ft of space for cutting edge research labs, smart classrooms, and accommodation for visiting researchers and doctoral students. It will be surrounded by lush forests, natural reservoirs, and fields for organic agriculture.

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Nimai Valley will

INSPIRE – Provide serene environments to stimulate creativity and intellectual discourse

INTEGRATE – Pay homage to local customs in its architecture and cultural relevance

INNOVATE – A solar-powered campus with net zero carbon emissions and zero water waste along with organic farming to support on-campus dining



Living on the campus will provide opportunities for experiential learning through exposure to conventional and cutting-edge practices, such as ancient regenerative farming techniques that may provide a way to deal with carbon sequestration and livestock-rearing techniques that afford alternatives to antimicrobial usage.

Through visits to nearby agricultural communities and discussions with top scientific and policy experts, students will gain valuable experience with real-world implications in their training as global health professionals

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# ABOUT BITS PILANI

BITS Pilani offers undergraduate, postgraduate, and PhD programs to over 17,000 students across its campuses in Pilani, Goa, Hyderabad, Mumbai, and Dubai. BITS Pilani was declared an Institution of Eminence by the Ministry of Education, Government of India in 2020. QS World University Subject Rankings 2022 has ranked BITS Pilani globally at i) 101-150 in Pharmacy ii) 301-350 in 2 subjects namely, EEE and Chemical Engineering iii) 401-450 in Computer Science iv) 501-550 in Chemistry v) 551-600 in Physics & Astronomy



BITS Pilani was ranked among the top 300 in QS World University Graduate Employability Rankings 2022 and within the top 8 in India. In the NIRF 2021 rankings, BITS Pilani was ranked 3rd in Pharmacy and 17th in the University category. In QS Asia University Rankings 2022, BITS Pilani was ranked 194th, the only private institute from India in the Asia Top 200, and 18th in India. The Institute secured over Rs 375 crore in external research grants in the last 5 years. State of the art facilities have been developed to support cutting-edge research, led by students and about 925 faculty members, leading to a Scopus h-index of 135, about 19,100 publications with over 1,80,320 citations as per Scopus Database and with 112 patents filed in the last 5 years, and 14 patents granted. Recently, BITS Pilani was chosen by the department of Science and Technology, government of India to establish a Technology Innovation Hub on Bio-Cyber Physical Systems with a grant of Rs 125 Cr - the only non-Government institute amongst the 25 chosen nationally for this prestigious grant. Recent studies have identified BITS Pilani at #3 in terms of number of Indian start-ups founded by the graduates of an institute. Currently, there are 12 BITSian Unicorns and 1 Decacorn. There are over 7,500 BITSian founders and co-founders of enterprises.

# MEET YOUR ADVISORS

## PhD ADVISORS FROM OHT



**Dr. Deepshikha Batheja**

Dr. Batheja has ongoing transdisciplinary work in health and economics, such as designing and assessing the value of biobanks using the conjoint experiment method, examination of acceptability and willingness to pay for COVID-19 self-testing kits in developing countries (WHO project), and studying the impact of oxygen concentrators on alleviating oxygen shortages in India with IFMR. A key thread in her research has been the impact of gender on economic and health outcomes.

Her research has received funding from the International Growth Center (IGC), JPAL under their Post-Primary Education Initiative, BLUM Initiative, China–India Visiting Scholars Fellowship, and the MSD Fellowship for Global Health. Her research work has been featured in World Bank Development Impact Blog, Ideas for India, IGC Blogpost, and Hindustan Times. Dr. Batheja received her PhD in economics from University of California, Riverside.

Her broad research interests are in the fields of development, health economics, and labor economics.



**Dr. Erta Kalanxhi**

Dr. Kalanxhi leads OHT's efforts to advocate the value of vaccines as a critical tool for mitigating antimicrobial resistance in low- and middle-income countries and collaborates with WHO to develop policy briefs on the implementation of national strategies for antimicrobial resistance. She also contributes to the Mapping Antimicrobial Resistance and Antimicrobial Use Partnership project, which aims to close the knowledge gap on antimicrobial use and resistance in 14 African countries.

Dr. Kalanxhi received a PhD in cancer research from the University of Oslo and an MSc in epidemiology from the London School of Hygiene and Tropical Medicine.

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**Dr. Geetanjali Kapoor**

Dr. Kapoor develops partnerships for the control of infectious diseases and mitigation of antimicrobial resistance. She is supporting the establishment of the world's first One Health Demographic and Health Surveillance System, a platform for implementing longitudinal studies across communicable and noncommunicable diseases. She contributed to developing the African antibiotic treatment guidelines for common bacterial infections and syndromes and India's national infection prevention guidelines and state action plans for AMR control. She is also a member of the Joint Programming Initiative on Antimicrobial Resistance scientific advisory board and WHO Advisory Group on the bacterial priority pathogen list.

Dr. Kapoor is a clinical microbiologist by training at Jawaharlal Nehru Medical College, Aligarh, India, and holds a master's in public health from Johns Hopkins University.

Her research interests are antimicrobial resistance surveillance, infectious disease and outbreak management, health systems strengthening, and health policy formulation.



**Dr. Eili Klein**

Dr. Klein researches the role of behavior in the spread of infectious diseases. He has authored numerous publications on the evolution and spread of antimicrobial drug resistance, particularly the emergence of antibiotic and antimalarial resistance. Dr. Klein is an assistant professor in the Department of Emergency Medicine at Johns Hopkins University.

He has a Ph.D. in ecology and evolutionary biology from Princeton University. His research interests include patterns of antimicrobial drug resistance and the influence of behavior on disease spread.





**Dr. Ramanan Laxminarayan**

Dr. Laxminarayan is the founder and president of OHT. He is a senior research scholar at Princeton University, affiliate professor at the University of Washington, senior associate at the Johns Hopkins Bloomberg School of Public Health, and visiting professor at the University of Strathclyde in Scotland.

Dr. Laxminarayan chairs the board of GARD-P, a global product development partnership created by the World Health Organization (WHO) that aims to develop and deliver new treatments for bacterial infections. He is founder and board chair at HealthCubed, which works to improve access to health care and diagnostics worldwide. He has a PhD in economics from the University of Washington.

Dr. Laxminarayan's work has been widely covered in major media outlets, including the New York Times, Washington Post, Associated Press, BBC, Financial Times, CNN, Economist, and Science. His research includes more than 300 books, book chapters, and peer-reviewed papers in leading journals in science, medicine, and economics.



**Dr. Varun Manhas**

Dr. Manhas is leading the implementation of the Bill & Melinda Gates Foundation-funded National Medical Oxygen Grid Project in India across different states in India, along with contributing to other public health programs related to antimicrobial resistance and reproductive, maternal, newborn, and child health.

He has a PhD in Bio-Mechanical Engineering from the University of Leuven, Belgium. He is also interested in digital health and health technology assessment.



**Dr. Arindam Nandi**

Dr. Nandi's research at OHT focuses on the value of vaccines, including their long-term health, cognitive, and schooling benefits, and reductions in antimicrobial resistance in low- and middle-income countries. He is working on a disease modeling project estimating the health and economic benefits of the pneumococcal, rotavirus, and HiB vaccines in the Indian context and another project evaluating the impact of COVID-19 on children's vaccination outcomes. Recently, he jointly led the largest-ever field study of the cost of delivering routine vaccination in seven Indian states.

Dr. Nandi worked as an associate at the Population Council. He received his PhD in economics from the University of California, Riverside.

His research interests include health economics, public health, and demography.



**Dr. Samantha Serrano**

Dr. Serrano writes country of origin expert witness testimony reports for asylum cases in North America and Europe related to health care access and gender- and disability-based violence in Guatemala and Brazil. Before OHT, she taught classes at the Federal University of São Paulo Medical School and other universities on qualitative research methods and social determinants of health. She has worked as a consultant on policy related to migration and COVID-19 response in Latin America and as a multilingual health educator.

Dr. Serrano received her ScD from the Federal University of São Paulo Medical School in Collective Health, where she conducted ethnographic research on the health care and care work experiences of Bolivian immigrant women in São Paulo.



**Dr. Amit Summan**

Dr. Summan's research primarily focuses on how low- and middle-income countries can improve child and maternal health outcomes through more efficient and equitable redistribution of public resources. Developing countries face a wide breadth of health challenges that are compounded by economic uncertainty and climate change. He has worked on a range of these topics and has published in the areas of child vaccination, fiscal policy taxation for health, cost of government health programs, the COVID-19 pandemic, and food safety.

Prior to joining OHT, Dr. Summan worked as a research consultant at the University of Guelph. He received his PhD from Wageningen University.

His research interests include health economics, child and maternal health, and fiscal policies for health.



**Dr. Sasha Tulchinky**

Dr. Tulchinsky is a Senior Technical Programmer based in OHT's Washington, D.C. office. His current work is focused on mathematical and computational modeling of infectious diseases, including antibiotic-resistant pathogens and viral infections, to understand transmission dynamics and predict the effects of interventions. He serves as a technical lead on research for the CDC-funded MInD Healthcare project, which seeks to model the spread of antibiotic-resistant infections in healthcare networks to predict risk to patients and inform prevention strategies.

He received his PhD in Evolutionary Biology from the University of Massachusetts Amherst, where he developed computational models of genetic interactions and host-pathogen coevolution. He has taught general biology, genetics, and molecular biology undergraduate classes at the University of Massachusetts and the State University of New York.



**Dr. Thomas Van Boeckel**

Dr. Van Boeckel is a spatial epidemiologist working at ETH Zurich as an SNF assistant professor. He is also a visiting fellow at OHT. He held positions at Princeton and Oxford and obtained his Ph.D. from the Free University of Brussels.

His research lies at the interface of science and policy. His objective is to accelerate the international response to the rapid rise of antimicrobial resistance. Specifically, he will pioneer the development of a novel type of platform to automate epidemiological data collection and use geospatial methods to map the geographic distribution of four common drug-resistant pathogens found in animals. His broad research interests are in the fields of antimicrobial resistance, disease mapping, spatial epidemiology, and livestock production systems.



## PhD ADVISORS FROM BITS



**Prof. Apurba Das**

Department of Computer Science and Information Systems; BITS Pilani, Hyderabad Campus

Prof. Das is broadly interested in developing data mining and query processing solutions for graph data, medical data, transaction data, network data, and more. The objective of this research is to develop automated diagnostic tools that can diagnose disease conditions based on patient history and historical data and then prescribe medications based on disease symptoms. This can help in primary healthcare in rural India where getting quality medical service is difficult. The goal of this research is two-fold: (1) Developing data structures for efficient storage and retrieval of complex, heterogeneous, high dimensional medical data, and (2) developing algorithms for efficient mining and query processing on the data store.



**Prof. Bheemeshwar Reddy A**

Department of Economics and Finance; BITS Pilani, Hyderabad Campus

Prof. Reddy reach focuses on aspects of public health, particularly on how social and economic inequities contribute to unequal health outcomes. His research interests include causal modelling application in public health and epidemiology, impact assessment of public health policies, and global comparative health systems. Bheemeshwar previously worked on different aspects of child and women's health in India. He is a recipient the SPANDAN grant to study regional variation in dietary diversity and anemia among women in India. He is currently working on various aspects of public health in collaboration with researchers from the University of Cardiff, UK and the Dalla Lana School of Public Health, University of Toronto, Canada.



**Prof. Dipanjan Chakraborty**

**Department of Computer Science and Information Systems; BITS Pilani, Hyderabad Campus**

Prof. Chakraborty works in the area of Behaviour Change Communication for Public Health with a focus on maternal and child nutrition. He works to build appropriate technologies for resourcepoor contexts. He has worked extensively on building voice interfaces for IVR systems. His research interests are in the broad fields of human and computer interaction and technology and society. He has a PhD in Computer Science from IIT Delhi.



**Prof. Durgesh Chandra Pathak**

**Department of Economics and Finance; BITS Pilani, Hyderabad Campus**

Prof. Chandra Pathak holds a PhD in Economics from G.B. Pant Social Science Institute (an autonomous Institute under the University of Allahabad) and a Post-doc experience from Indira Gandhi Institute of Development Research (IGIDR-Mumbai). He works in areas of Public Policy analysis, Intimate partner violence, Public health, Impact assessment of policy measures, migration, applied game theory, financial inclusion, and Poverty analysis and has published papers in these areas. He has expertise in applied microeconometrics and has experience working with NFHS, NSS, and IHDS datasets exploring issues related with intimate partner violence, health outcomes, etc. He can handle field-based studies with equal poise and has recently completed a project of such nature with IMPRESS-ICSSR, New Delhi.



**Prof. Jabez Christopher**

**Department of Computer Science and Information Systems; BITS Pilani, Hyderabad Campus**

Prof. Christopher's research work is focused on assisting medical centers with strategic knowledge management tasks and clinical decision support in areas related to allergy diagnosis. It involves the application of computer methods and programs for medical informatics. Some of his work is based on decision theory and uncertainty modeling. The objective of the research is to provide rational decision and explainable knowledge. It involves the development of medical decision support systems that aid less-experienced clinicians with interpretable decision-making models. His areas of interest include type-1 & 2 fuzzy arithmetic, decision-making under uncertainty, probabilistic reasoning frameworks, and explainable AI and ML models.



**Prof. Jajati Keshari Sahoo**

**Department of Mathematics; BITS Pilani, K K Birla Goa Campus**

Prof. Sahoo works in diverse fields of mathematics and computer science, mainly topics closely related to numerical linear algebra, matrix theory, machine learning-based applications, linear algebra, and tensor computations.



## **Prof. Mini Thomas**

**Department of Economics and Finance; BITS Pilani, Hyderabad Campus**

Prof. Thomas' research interests include examining the socio-economic determinants and outcomes of the relationship between gender and health in the context of the COVID-19 pandemic. She was a contributor for the thematic group on social and structural determinants for the research agenda setting exercise on “Gender and COVID-19”, implemented by United Nations University – International Institute for Global Health (UNU-IIGH), Malaysia, 2020-21. She holds a PhD in Economics from the Institute for Social and Economic Change (ISEC), Bangalore, and has completed research stints at Harvard University (USA) and Reserve Bank of India. She is currently leading a research project funded by Monash University (Australia), which examines the impact of the COVID19 pandemic on employment. She also completed another research project funded by ICSSR related to financial inclusion. She has published research papers in the fields of macroeconomics and development economics



## **Prof. Poonam Goyal**

**Department of Computer Science and Information Systems; BITS Pilani, Pilani Campus**

Prof. Goyal is professor in the Department of Computer Science & Information Systems, Birla Institute of Technology & Science, Pilani. She specializes in the areas of big data analytics, high-performance computing, multimedia retrieval, computer vision, and natural language processing. Her research has contributed in various social and scientific domains like social media analytics, multi-modal knowledge graphs, bio-informatics, and more.

As a PI of SERB-CRG project from DST, she is working on developing a multi-modal learning system for image and video analytics with multimodal knowledge graphs. In another project as PI with ADOBE, she is working for advertisement learning using multi-modal data. She is also working as PI in a project on wildlife crime data awarded from Google AI for Social Good.



**Prof. Rishi Kumar**

**Department of Economics and Finance; BITS Pilani, Hyderabad Campus**

Prof. Kumar is interested in exploring health-related issues, especially in developing countries where these are further complicated by inadequate public funding, insufficient infrastructure, and societal complexities, including social and financial disparities. His research focuses on applying data analysis techniques, econometric modelling, and impact evaluation methods to understand the complex nexus of health, public policies, and welfare implications at different levels. His experience ranges from working on large secondary data sets to designing field studies and working on resultant primary data. He has worked on issues lying at the intersection of health outcomes and gender, the effect of institutional health facilities, factors behind the use of psychoactive substances, and water and sanitation. He has published in well-reputed journals, contributed to government reports, and received competitive funding grants from prestigious institutes, like ICCSR, Shastri Indo-Canadian Institute, National Human Rights Commission, Dvara foundation, Azim Premji University, among others. He is also regularly invited to review research articles in renowned journals. With a master's and doctorate from IGIDR, Mumbai, he is an empirical development economist with expertise in statistical software, including Stata, R, and he seeks to gain unique insights into policy-relevant questions related to health.



**Prof. Subhrakanta Panda**

**Department of Computer Science and Information Systems; BITS Pilani, Hyderabad Campus**

Prof. Panda's research interests include social network analysis, to gain insights related to key questions that pertain to the dynamics of the specific network and also possibly for predicting the future patterns of social networks and infer valuable insights from them; applications of blockchains; and medical analytics, to securely store medical records and analyze the stored records to predict future medical complications in patients undergoing treatment of critical diseases like cancer.



**Prof. Vinti Agarwal**

**Department of Computer Science and Information Systems; BITS Pilani, Pilani Campus**

Assistant Prof. Agarwal is a machine learning researcher with more than ten years of experience. She is leading a Graph AI research group at BITS Pilani, India, which focuses on applied machine learning to model complex, richly-labeled relational structures, graphs, and networks for systems at all scales to make predictions or discover new patterns. Applications include recommender systems, drug repurposing, and social determinants of health (SDH) modeling for health security.

As a co-principal investigator of MRFF project from CSIRO, Australia, she and her team successfully developed a web application CoviRx ([www.covirx.org](http://www.covirx.org)), for finding repurposed drugs for COVID-19 and also developed a graphML framework to list the top 15 drugs that can be repurposed for COVID19 treatment. Her work has been selected as a cover story in MDPI Data Journal. Another ongoing project, “Western Australia Transforming Community Health (WATCH),” focuses on developing and validating the software algorithm underpinned by graph theory and machine learning to transform community health in Western Australia by understanding the unmet needs of different populations and their interconnectedness.