Dr. Dennis Robert
Clinical Research Scientist, Qure.ai
Academic Qualifications: MBBS, MMST
Expertise: AI/ML CAD Evaluation, RWD Biostatistics & Epidemiology, Clinical Data Science
Work Location: Bangalore, India

Medium

CRAN R Package Author
Package Name: autoCovariateSelection
Package Name: MRMCsamplesize

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PROFESSIONAL AND ACADEMIC SUMMARY

Profile and Years of Experience

- **Physician turned Clinical Data Scientist** with an overall experience of 11+ years
- **MBBS** (Bachelor of Medicine and Surgery) graduate
- Post-graduation in Medical Science & Technology (**MMST**) focusing on Biostatistics & Epidemiology
- 8+ years of experience in Medical AI/ML, Pharmaceutical, and Healthcare Consulting industries
- Three years of experience in General Clinical Practice
- Experience as an independent contributor and people manager

Medical AI/ML Experience

- **Research study protocol design & statistical analysis** for AI/ML-based CAD evaluation studies
- Experienced in AI/ML model development using structured Real-World-Data (**RWD**)
- Clinical Performance Assessment of AI/ML CAD devices for FDA 510 (k) submissions

RWD Experience

- RWD observational study design & statistical analysis
- **Comparative Effectiveness Research** (CER), **Rapid Data Queries** (RDQ)

Programming

- R
- Python

Major Academic Achievements

- **Khorana Scholar**
- **Kerala State Rank 4 (All India Rank 144)** for the All-India Pre-Medical Entrance Examination

SKILLS

Clinical Data Science, Biostatistical, Technical (Programming) and Functional Skills

- **Biostatistics**
    - Statistical Analysis Plan (SAP) development
    - Multi-Reader Multi-Case (MRMC) study design and statistical modeling
    - Standalone performance analysis of AI/ML CAD devices
    - Comparative Effectiveness Research (CER) using RWD
    - Confounder adjustment in RWD studies (matching, HDPS algorithm)
    - Survival (Time-to-Event) analysis
- **Classical Machine Learning**
  Source data type: Structured patient-level clinical data
    - Logistic & regularized regression methods
    - Random forests
    - Unsupervised learning (clustering)
- **Deep Learning**
  Source data type: Structured patient-level clinical data
    - Feed-forward deep neural networks
    - RNN & LSTM (Project Experience)
- **Epidemiology**
    - Clinical research study protocol study design for AI/ML (CAD) studies
- **Technical:**
    - R (Expert)
    - sparklyr (Project experience)
    - Python (Project experience)
    - Impala/SQL (Project experience)
- **Functional:**
    - Broad medical domain knowledge
    - Real-World-Data (Truven, Optum, CPRD, OMOP CDM)
    - Medical Ontologies (ICD, NDC, LOINC, CPT, HCPCS, SNOMED, MedDRA, CPRD Read)

Soft Skills

- People management (led a 5-member team of RWD analysts, data scientists, and a clinical coder)
- Collaborative ways of working with multi-disciplinary cross-functional teams
- Scientific/technical oral presentations

Professional Experience

Organization	Designation	Timeline
Qure.ai	Clinical Research Scientist	Aug 2022 – Present
GlaxoSmithKline	RWD Manager – Vaccines and Data Science	Nov 2021 – Aug 2022
Deloitte	Senior Clinical Data Scientist	Nov 2015 – Jun 2021
ResMed	Clinical Specialist	Dec 2014 – Oct 2015
IRCAD Taiwan	Research Fellow (Internship)	Jun 2014 – Nov 2014
IIT Kharagpur	Medical Officer, BC Roy Technology Hospital	Jul 2011 – May 2014

Education

Institution	Degree	Timeline
IIT Kharagpur	MMST (Masters in Medical Science and Technology)	Jul 2011 - Jul 2014
Govt. Medical College Kottayam	MBBS (Bachelor of Medicine and Surgery)	Jun 2003 - Feb 2010

Academic and Professional Awards and Achievements

Academic

- ❖ **Gold Medalist:** Topmost rank in institute in first attempt for All India Pre-Medical Entrance Test **(All India Rank 144, Kerala State Rank 4).** Ranked 144 among more than hundred thousand candidates from all over India in AIPMT exam, the then most competitive and objective medical entrance examination in India.
- ❖ Awarded **Khorana Scholarship** for doing summer internship in University of Wisconsin-Madison, USA in Department of Biostatistics and Medical Informatics
- ❖ Secured 3rd Rank in MG University Kerala for the First Professional MBBS examination
- ❖ Student Paper Competition Finalist in the IEEE EMBS Special Topic Conference on Point-of-Care Healthcare Technologies 2013

Professional

- ❖ Golden Helix Award for Innovation and Outstanding Performance in Deloitte (2020)
- ❖ Rated 1 (highest rating) for best performance for two consecutive times in 2017 and 2018 in Deloitte
- ❖ Received Spot Awards, Bronze and Silver awards for performance in projects in Deloitte and GlaxoSmithKline multiple times

Publications

Journal Publications

1. Shibu Vijayan, Vaishnavi Jondhale, Tripti Pande, Amera Khan, Miranda Brouwer, Asha Hegde, Ravdeep Gandhi, Venkatesh Roddawar, Shilpa Jichkar, Aniruddha Kadu, Sandeep Bharaswadkar, Mayank Sharma, Nathalie Vasquez, Lucky Richardson, **Dennis Robert**, Saniya Pawar. *Implementing a chest X-ray artificial intelligence tool to enhance tuberculosis screening in India: Lessons learned*. PLOS Digit Health. 2023 Dec 7;2(12):e0000404. doi: 10.1371/journal.pdig.0000404. PMID: 38060461; PMCID: PMC10703224.

2. **Dennis Robert**, Saigopal Sathyamurthy, Preetham Putha. *MRMCsamplesize: An R Package for Estimating Sample Sizes for Multi-Reader Multi-Case Studies*. medRxiv. Published online 2023. doi:10.1101/2023.09.25.23296069 [PREPRINT]

3. Hariprasad T, **Dennis Robert**, Anish TS. *A Methodological Rectification in the Global Hunger Index*. Econ Polit Wkly. 2022;57(14):14-17.

4. Hariprasad T, Anish TS, Retheesh K Haridasan, **Dennis Robert**, et al. *Global COVID-19 transmission and mortality - influence of human development, climate and climate change on early phase of the pandemic*. Earth Sp Sci Open Arch. Published online 2021:26. doi:10.1002/essoar.10505823.1

5. Bikas K Arya, Sangeeta Das Bhattacharya, Catherine Sutcliffe, Swapan Kumar Niyogi, Subhashish Bhattacharyya, Hemram S, William Moss, Sameeran Panda, Ranjan Saurav Das, Mandal S, **Dennis Robert**, Ray P. *Impact of Haemophilus influenzae Type B Conjugate Vaccines on Nasopharyngeal Carriage in HIV-infected Children and Their Parents From West Bengal, India*. Pediatr Infect Dis J. 2016;35(11):e339-e347. doi:10.1097/INF.0000000000001266

6. Bikas K Arya, **Dennis Robert**, Sangeeta Das Bhattacharya, Jayanta Mukhopadhyay. *A framework for web based geographical information systems for country wide antimicrobial resistance monitoring*. (2013) Health Policy and Technology, 2 (2), pp. 85-93

Conference Presentations

1. Abhishek Patil, **Dennis Robert**, Charu Arora, Syed Pasha, Anshul Chauhan, Anagh Purkar, Anshul Kumar Singh, Saigopal Sathyamurthy, Preetham Putha, Aditya Daftary. *Impact of an AI-based workflow in interpretation of chest radiographs*. Oral Presentation, RSNA, November 2023

2. Emiliano Garza, Mannudeep Kalra, **Dennis Robert**, Sai Kiran, Charu Arora, Manoj Tadepalli, Preetham Putha et. al. *Autonomous AI-based CXR interpretation for predicting congestive heart failure: A multicenter study*. Oral Presentation, RSNA, November 2023.

3. **Dennis Robert**. *An R Package for Estimating Sample Sizes for Multi-Reader Multi-Case (MRMC) Studies*. Poster Presentation, R/Medicine, June 2023.

4. Souvik Mandal, **Dennis Robert**, Rohit Chouhan, Prakash Vanapalli, Vikash Challa, Saigopal Sathyamurthy, Amit Chouksey, Preetham Putha, Ankit Modi. *Using an artificial intelligence algorithm to improve radiologists' performance in detecting pulmonary nodules in chest-CT scans: a multi-reader multi-case study*. Oral presentation, European Congress of Radiology (ECR) 2023, Vienna, March 2023. ECR 2023 Book of Abstracts. Insights Imaging 14 (Suppl 4), 217 (2023). RPS 1705-5, https://doi.org/10.1186/s13244-023-01522-6

5. **Dennis Robert**, Smriti Ridhi, Pitamber Sore, Saniya Pawar, Preetham Putha. *Performance comparison of an artificial intelligence-based algorithm between digital-ray images and mobile photos of x-ray films in detecting signs of tuberculosis*. Oral Presentation, National Conference of Tuberculosis and Chest Diseases (NATCON 2022), Agra, February 2023.

6. Kristin Feeney, **Dennis Robert**, Prerna Patil, Sergey Charkin, Dan Housman, Yuval Koren, Xia Haiping, Jinlei Liu. *Building Deep Learning Models with the OMOP CDM*. Poster, 2017 OHDSI Symposium, October 2017.

7. **Dennis Robert**, Bikas K Arya, Mausom Mallick, Sangeeta Das Bhattacharya, Swapan Kumar Niyogi, Shekhar Chakrabarty, Sutapa Mandal, Subhashish Bhattacharyya. *Association between baseline plasma HIV viral load and nasopharyngeal pneumococcal colonization in children with HIV infection*. Poster presentation in 9th ISPPD, March 2014.

8. Bikas K Arya, Sangeeta Das Bhattacharya, Swapan Kumar Niyogi, Subhasish Bhattacharyya, Sutapa Mandal, **Dennis Robert**, Ranjan Saurav Das. *Pneumococcal carriage in HIV infected mothers and children in West Bengal*. Poster, 9th International Symposium on Pneumococci and Pneumococcal Diseases, March 2014.

9. Bikas K Arya, **Dennis Robert**, Sangeeta Das Bhattacharya, Jayanta Mukhopadhyay. *A framework for web based geographical information systems for country wide antimicrobial resistance monitoring*. Oral Presentation, IEEE PoCHT, January 2013.

Internal Industrial Conference Presentations

1. Jennifer Gerber, Dominique Derreumaux, Amoolya Krishnamoorthy, **Dennis Robert**, Emmanuel Aris, et.al. *COVID-19 vaccine and booster uptake in pregnant women in the US: A Retrospective Real-World-Data Descriptive Observational Study using Truven Commercial Claims Data.* Poster, GSK R&D Days, June 2022

2. **Dennis Robert**, Nikola Andric, Robert Coopersmith. *Application of Novel Cluster Analysis Techniques for Hypothesis Generation and Acceleration of Biomarker Identification in Life Sciences and   Healthcare Industry using Databricks as the Data Science Platform.* Poster, Deloitte Analytics Summit, May 2017