

RAEE SURESH BHAGAT

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BIostatistician

PROFESSIONAL SUMMARY

Biostatistician with nearly five years of statistical analysis and applied research experience across aviation sleep, fatigue, and interdisciplinary studies. Skilled in R, longitudinal data preparation, survival analysis, mixed-effects modeling, and study design simulation. Develops reproducible reports and dashboards, validates complex outputs, and explains statistical findings to clinicians, researchers, and operational stakeholders.

SKILLS

Statistical modeling: Cox regression, survival analysis, mixed-effects models, repeated-measures analysis, regression, model diagnostics

Programming and data: R, Python, SQL, dplyr, tidyr, purrr, lubridate, readxl, openxlsx

Reporting and visualization: R Markdown, Quarto, ggplot2, Shiny, Plotly, Microsoft Excel

Research methods: Study design, power analysis, Monte Carlo simulation, data validation, cohort construction, stakeholder communication

PROFESSIONAL EXPERIENCE

Biostatistician, Washington State University

Dec 2023–Present

Department of Translational Medicine and Physiology | Spokane, WA

- Analyzed longitudinal sleep and cognitive performance data in R, linking flight records and actigraphy to support route-level research questions.
- Applied Cox regression and mixed-effects models to recovery and fatigue outcomes, documenting assumptions and diagnostics for defensible interpretation.
- Built Shiny dashboards and ggplot2 visualizations that let research collaborators compare cohorts by route, crew role, and flight phase.
- Automated monthly metrics and sample-readiness reports with R and Excel, distinguishing unique pilots, repeated trips, and usable endpoint observations.
- Collaborated with clinicians, physiologists, and aviation researchers to translate statistical results into clear reports and manuscript-oriented figures.

Research Analyst and Graduate Research Assistant, University of Idaho

Jan 2022–Dec 2023

Department of Mathematics and Statistical Science | Moscow, ID

- Cleaned clinical and biological datasets in R, standardizing variables and checking records before analysis for interdisciplinary research teams.
- Developed regression summaries and statistical visualizations that helped investigators understand findings and prepare research reports for varied audiences.
- Explored bacterial-growth dynamics with stochastic models and particle Markov chain Monte Carlo, communicating methods through R-based analyses.

Teacher, Sahyadri English Medium School

Mar 2018–Dec 2020

India

- Taught mathematics across standard and advanced levels, adapting lessons and assessments to help students strengthen quantitative problem-solving skills.

Assistant Professor of Mathematics, JSPM

Feb 2017–Feb 2018

Pune, India

- Designed mathematics lectures, problem sets, and examinations that gave students structured practice in analytical reasoning and applied problem solving.

PROJECTS

Flight-Duty Screening and Output Validation

R | Excel

- Screened 3,198 flight records with rule-based R logic covering time zones, crew-size branches, and multi-segment trip conditions.
- Reconciled generated audit fields, record keys, and duplicates against source data; saved validation reports showed zero mismatches in checked outputs.

Pilot Cognitive Recovery and Sleep Feature Engineering

R | survival | lubridate

- Integrated actigraphy, sleep logs, and flight data across four routes, then modeled recovery events using Cox proportional hazards methods.
- Derived baseline performance and 24-, 48-, and 72-hour sleep features, then reviewed proportional-hazards assumptions and related model diagnostics.

Interactive Aviation Research Dashboards

R Shiny | Plotly | DT

- Developed interactive cohort filters, charts, and tables that helped researchers explore fatigue and cognitive performance by operational subgroup.
- Displayed route, crew-role, and flight-phase comparisons with participant and trip summaries to support transparent research exploration.

Study Power and Repeated-Measures Simulation

R | TrialSize | lme4

- Built sample-size calculations and configurable simulations to evaluate paired comparisons, participant effects, and missingness assumptions before data collection.
- Used endpoint-specific non-inferiority margins and mixed-model evaluation loops to compare planned study designs under stated assumptions.

Inflight Rest Scheme and Pre-Flight Nap Analysis

R | ggplot2 | effectsize

- Compared cognitive performance, fatigue, sleepiness, and sleep measures across rest schedules and pre-flight nap groups on four routes.
- Produced subgroup counts, timepoint visualizations, and effect-size estimates to communicate observational patterns without implying causal effects.

Pilot Metrics and Excel Reporting Automation

R | openxlsx | Excel

- Integrated master tracking records with completeness rules to generate route-by-month pilot metrics and formatted Excel research summaries.
- Maintained modular reporting scripts for program-specific record structures, preserving clear definitions of complete and incomplete study observations.

EDUCATION

Master of Science in Statistical Science, University of Idaho

Dec 2023

Moscow, ID | GPA 3.90/4.00

Master of Science in Pure Mathematics, Savitribai Phule Pune University

Jul 2016

Pune, India | GPA 3.82/4.00

Bachelor of Science in Mathematics, Punyashlok Ahilyadevi Holkar Solapur University

May 2014

Solapur, India | GPA 3.74/4.00

CERTIFICATIONS

Survival Analysis in R | DataCamp | May 2025

SQL for Data Science | University of California, Davis | Aug 2023

Intermediate Python | DataCamp | Jun 2026

Joining Data with pandas | DataCamp | Jun 2026

Data Visualization with Python | Coursera | Feb 2023