**Senthil Murugan**

110 Galway Circle, Chalfont, PA 18914 Cell: 908-887-3719 Email: [senthilkmurugan@yahoo.com](mailto:senthilkmurugan@yahoo.com)

**OBJECTIVE:** Partner with brand portfolio leadership and lead data science, commercial insights, and analytics.

**CAREER HISTORY**

**2008 to Present Merck & Co., Upper Gwynedd, PA**

Director – Data Science - Impact Assessment & Investment Optimization (2018 - Present)

Associate Director – Investment Analytics and Decision Sciences – US and Global (2013 - 2018)

Senior Specialist / Project Manager – Commercial Analytics and Decision Sciences (2010 - 2013)

Manager - Global Business Analytics (GBA) (2008 – 2010) – Schering-Plough Pharmaceuticals

**1999 to 2008 IQVIA / Cegedim Dendrite, Bedminster, NJ** - Senior Scientist / Consultant

**EXPERIENCE**

More than two decades of hands-on experience in pharmaceutical commercial insights, analytics and promotional investment strategy spanning 15+ years with Merck. Worked with multiple top and medium sized pharmaceutical manufacturers and in multiple therapeutic areas. Analytical expertise in marketing promotions, omnichannel campaigns, targeting, market simulations, synthetic data, sales force sizing, call planning, market access, market research and reporting.

**Director - Data Science - Impact Assessment & Investment Optimization *Merck***

***Management***

* Demonstrated 7+ years of experience in directly influencing Senior Commercial BU leadership and US Chief Marketing Officer.
  + - * US BUs, Finance and marketing teams include Oncology, Vaccines, Chronic Care and Hospital / Specialty.
* Responsible for delivery of sales impact measurements and guiding optimal brand budget allocations.
  + - * Inform marketing mix and optimal marketing promotion investment of about $1.1 Billion per year.
      * Lead sales impact analysis of HCP promotions, Consumer promotions and Patient support programs.
      * Expertise in developing data and insight innovations and advanced analytics methods.
* Lead, develop and coach a team of about 6 to 8 employees and several consultants for 8 years.
  + - * Organize/setup teams, communicate clear goals, track regularly, and ensure success in achieving goals.
      * Prioritize projects, manage work performance, and conduct effective performance reviews.
      * Train, inspire and motivate the team to deliver by listening to, being hands-on and supporting individual needs.
      * Guide and train Offshore Merck team in Pune, India.
* Manage team budgets, deliver on goals, manage vendors, analysis designs, summarizing and presenting results.

***Functional Areas of Responsibility***

* **Health Care Provider (HCP) Personal, Digital & Consumer Media Promotions [$700M+ budget]**
  + - * Measure sales impact / ROI and Provide sales maximizing investment guidance for each vendor & channel of promotions both during profit planning and ongoing executions. *Includes key brands of* ***ALL US Merck BUs.***
      * HCP Channels include details, samples, speaker programs, alerts, third party vendor emails, headquarter emails, eDetails, field emails, point of care, display and paid search.
      * Consumer Channels: TV, Display, Online / Streaming Video, Social, Paid Search, Point of Care and Adherence.
      * Guided multiple campaign planning and omnichannel strategies to maximize revenue and customer experience.
      * Guided investments through Marketing Mix, Adhocs, Pilot design/analysis and Promotion Response curves.
      * ***Oncology:*** Guided budgets and promotion strategies for Keytruda from its launch to current multiple indications and tumors. Expanded portfolio to Lenvima, Lynparza and Welireg.
* **Patient Support Programs [~$200M+ spend]**
  + - * Design, Evaluate and Guide deployment of Coupons, EVouchers, Samples and Vouchers for Pharma BU.
* **Strategic Initiatives**
  + - * Synthetic Data – Established CoE for business impacting data generation use cases using GenAI / Deep Echo / Statistical models.
      * Next Best Engagement (NBE) – Core member from inception to implementation of multiple brand NBE models.
      * DOMINO – Conceptualized, designed, and implemented budget allocation process for Oncology [~$700MM].
      * Health Map – Guide net conversion analysis for consumer promotions using consumer level media exposures.
      * Content Hyper Personalization – Predict the value of content personalization to business.
* **Data, Models and Simulations**
  + - * Established Market Simulation CoE to identify key marketing strategies for brand launches using agent-based simulations.
      * Extensive hands-on experience in working with wide variety of pharmaceutical datasets.
      * Understand the utility and use vast varieties of data sources both in Specialty and other BUs.
      * Extensive hands-on and management experience in varieties of Marketing Mix type statistical models, Test/Control analysis, Pilot designs, Machine Learning methods.
      * Hands-on experience with Python, SAS and R in multiple environments such as AWS cloud eco-system.
* **Market Access**
  + - * Managed analytics and reporting related to contracting / discounting strategies and impact of 340B.
* **Performance Reporting / Market Research / Forecasting**
  + - * Managed delivery of reports to answer both ad-hoc key business questions and standard performance tracking.
      * Utilized consumer and HCP market research reports to identify targets, plan campaigns and calibrate ROIs.
      * Utilized forecasts to develop multiple brand budget computations, optimizations and setting campaign goals.

***Collaboration***

* Developed close, trusted and highly effective working relationships with Brand and Senior leadership by identifying key issues, delivering, and advocating key insights through data and analytics leadership.
* Partnered with multiple Agile collaboration teams.
* Collaborate extensively with Brand teams, Finance, Market Research, Forecasting, Digital Engagement, Media, NBE, Commercial Legal, Operations, IT, Contract Optimization, Sales Force Optimization, Targeting etc.
* Manage and/or collaborate with multiple vendors such as Datazymes, Crossix, Initiative, Solved, IQVIA, Symphony, ZS etc. to execute various initiatives.

**Associate Director, Global Go-To Market Analytics *Merck***

* Managed, Executed and Presented various Promotional Impact, ROI, Market Mix and Sales Force Sizing for:
  + - * SF Sizing: Russia (12 Franchises), Brazil (3 Franchises), Hong Kong (7 Products).
      * Details / Meetings / Lectures / TV: China (2 Products), Japan (Januvia), Canada (Zostavax TV & Reps).

**Commercial Analytics and Decision Sciences *Merck***

***Consumer and Physician Promotion Response, ROI, Marketing Mix, Pilots and Budget Allocations [$300M+]***

* Measured ROIs of TV and Print campaigns. Identified channel optimal allocations, pilot sizes, test and controls for many pilots.

**Global Business Analytics / Decision Sciences *Schering-Plough / Merck***

* Developed and Managed Targeting and Call Plans for multiple field forces - customer centric & fixed product.
* Sales force sizing and optimal resource allocations of sales force promotions

**Analytics and Consulting *Cegedim Dendrite / IQVIA***

* Responsible for multiple sales force design, sizing, call planning and optimal resource allocation initiatives for Odyssey Pharmaceuticals, Johnson & Johnson, Pfizer, Bristol-Myers Squibb (BMS) etc.,
* Executed multiple physician and consumer marketing promotion response and ROI analysis for Cell Tech, GSK (Levitra coupons and vouchers, patient level data analysis), Wyeth, Pfizer, Abbott and Sanofi-Aventis.

***Market Research, Longitudinal Prescription Data (LPD) Analysis and Reporting for 10+ pharma manufacturers.***

* Recommended key takeaways through LPD metrics for GlaxoSmithKline, FDA, Bayer, Schering-Plough etc.
* Part of small team that developed and delivered various LPD metrics that are now in common practice across the industry.

**EDUCATION**

* **Central Connecticut State University, CT, USA**

M.S. – Data Mining. *Award:* *Graduate Academic Award* 2007 - Top in the graduate program.

* **Indian Institute of Technology (IIT), Madras, India**

M.S. – Machine Dynamics. *Score: GATE* – 96th percentile in the country.

* **Madurai Kamaraj University, Tamilnadu, India**

B.E. - Mechanical Engineering. Top 5% of class.

**MODELING AND PLATFORM EXPERIENCE**

**Modeling:** Regression models like linear, non-linear, mixed models, random and fixed effects, time series cross section models, neural networks, semi & non-parametric models, generalized additive models, TreeNet, Lasso.

**Optimization:** Linear, non-linear, multiple integer programming and genetic algorithms.

**Machine Learning:** GenAI, Deep Learning, Multiple Clustering methods. Decision trees, choice models, discriminant analysis and a wide range of statistical and machine learning models.

# **Languages / Scripts:** Python, SAS, R, SQL, Java and few others.

**PUBLICATIONS**

Presented and authored / co-authored multiple innovative articles in PMSA and PBIRG conferences. Topics include:

* Measuring responsiveness of integrated multichannel marketing programs
* Uncovering physicians' adoption patterns of newly launched products
* Effects of Medicare Part-D and identifying high-potential physician targets
* New method to identify targets during the early phases of product launch
* Robust framework for various types of resource optimization problems using evolutionary algorithms