Sembian Balasubramanian

AI Strategy & Agentic Systems Leader | Biopharma | MCS AI & Data Science

sembianb@gmail.com | linkedin.com/in/sembian-balasubramanian-1224711 | claritycascade.com | Chicago, IL

24+ years • 537+ projects • $30M+ budget • ~$12M est. cost avoidance • ML model in production • US Patent 9,098,680

SUMMARY

AI product and transformation leader in biopharmaceutical Medical Affairs who takes AI from use case to production. Designed a Graph RAG decision platform and an evaluated, human-reviewed agentic system, and put a machine learning budget-risk model into production with backtesting and drift monitoring. 24 years across software engineering, digital learning, and portfolio leadership.

Core strengths: AI strategy & roadmaps • Generative & agentic AI • LLM evals • Graph RAG • Machine learning & MLOps • AI product delivery • Data governance & responsible AI • AI adoption & change management • Cross-functional stakeholder leadership • Business cases & ROI

EXPERIENCE

Director, Medical Program Management, Eye Care, Neurotoxins & Therapy Area 3 International — Dec 2025 – Present

AbbVie (biopharmaceutical)

- **Gave Medical Affairs leaders and cross-functional stakeholders one governed view of tactics, budgets, approvals, and investment decisions,** enforced by about 170 validation rules, by defining requirements for and designing the MPM Control Tower, an AI product where rules compute every figure and generative AI explains it through knowledge-graph retrieval (Graph RAG).
- **Turned thousands of field insights into medically reviewed recommendations for executive leadership,** with every output gated by evals and logged tool calls, by founding MAESTRO, an agentic AI system of a planner and expert agents over insights, knowledge graphs, and finance tools.
- **Cut literature and congress review effort, ~$450K est. avoided across seven congresses,** by automating paper screening (an agent scores, a reviewer decides), abstract extraction, and daily Copilot leadership summaries.
- **Made evidence-generation investment decisions comparable across markets and four therapeutic areas,** delivered in 12 gap workshops (~$800K est. cost avoidance, 2024–2026), by building one transparent scoring rule and custom Microsoft Copilot skills.
- **Avoided ~$1.5M in research spend (est., 2026)** by leading the Eye Care evidence-gap and endpoint analysis that led to a research cancellation.
- **Gave leadership costed 2027 staffing options for medical review** by building a workload forecast (resource and capacity planning) backtested on four years of workload, funding, invoice, and timesheet data.
- **Saved $150K in vendor fees and set annual strategic planning priorities across ten workshops** by building the Fast Start framework with Claude Code and Copilot, which turns 16 inputs into a 325-slide workshop deck and roadmap.
- **Drive AI transformation and everyday adoption across Medical Program Management as AI Champion,** coaching teams to build and apply Copilot skills in their own workflows (change management in the flow of work).
- **Keep $3.2M of 2026 investment across 51 projects tied to Medical strategy (plan: $2.9M)** through portfolio intake, stage-gate reviews, and prioritization, resolving underspend and overspend trade-offs as they arise.

Director, Medical Program Management & Strategic Operations, US Neurology & Women's Health — Mar 2015 – Nov 2025

AbbVie (biopharmaceutical)

- **Cut budget variance 20% across $10M in portfolios** by putting SmartSync into production: a machine learning model (random forest, five years of budget grids) that forecasts each tactic's year-end spend and risk level.
- **Put forecasts where teams plan, 164 tasks across three projects in under five minutes with no API errors (2025 run),** by writing scheduled Python jobs that post each forecast, risk level, and top SHAP drivers to Asana.
- **Kept the forecast reliable year to year across its model lifecycle** with walk-forward backtests on a held-out year, versioned models retrained each planning cycle, and monthly error and drift checks.
- **Found where contracting time was lost between initiative intake and purchase order across 100+ timelines** by process mining in Celonis, then redesigned the finance, contracting, and purchasing workflow.
- **Showed leadership how spend moved with HCP sentiment and digital engagement** by building Power BI financial analytics and KPI dashboards fed by data pipelines and Posner-model sentiment analysis (NLP) of field data.
- **Brought 200+ projects under one portfolio operating model** by building Asana Enterprise OKRs, event templates scheduled back from event day, automated workflows, predictive budget controls, and portfolio scorecards.
- **Helped MSLs and congress booth teams explain disease mechanisms** with Women's Health Unity VR experiences and 360-degree videos, measured with engagement analytics.
- **Delivered 486 projects and $27.8M in spend against a $26.5M plan (2019–2024)** as portfolio, program, and project management lead for two US Neurology and three Women's Health therapeutic areas, owning Medical Functional Plans and Books of Work.

Senior Manager, Digital Learning Design & Development
Nov 2009 – Feb 2015

Abbott Laboratories (pharmaceutical division, AbbVie from 2013)

- **Cut app development cycles by 300 days and saved ~$7.5M across 15 apps** by inventing a reusable iOS security framework (sole inventor, US Patent 9,098,680); President's Award, 7 of 55,000+ employees.
- **Grew engagement 10x for 5,000+ monthly active sales representatives** by building and running PRONTO, a learning and tracking platform, plus the BRAINIAK learning game (15x engagement).

Program Manager & Application Architect
Jul 2002 – Nov 2009

Cognizant Technology Solutions

- **Delivered learning platforms and API integrations for GlaxoSmithKline, Delta Air Lines, and MetLife** as program manager of a 40-person offshore engineering team.
- **Consolidated GlaxoSmithKline's learning systems into one global, multilingual platform and scaled Delta training to 100+ courses** with a reusable course framework, LMS reporting, and scored Boeing 787 flight-deck simulations.

SKILLS

AI & ML: AI strategy and roadmaps • Generative and agentic AI • LLM evals and human-in-the-loop review • Graph RAG and knowledge graphs • LangChain / LangGraph • Machine learning (random forest, deep learning) • MLOps: backtesting, versioning, drift • Responsible AI and data governance

Data & engineering: Python (pandas, scikit-learn, PyTorch) • SQL • REST APIs and scheduled jobs • AWS • Docker, CI/CD, Azure DevOps • React / TypeScript • Power BI, Tableau • Celonis process mining

Platforms: Microsoft Copilot • Claude Code • Enterprise LLM gateway API • Asana Enterprise • Smartsheet • MS Project • GitHub • Figma

Portfolio & program: Portfolio management and PMO • Stage-gate governance • Business cases and ROI • Budget, latest estimate, and variance • Resource and capacity planning • Risk and dependency management • Vendor and contract management • Agile, Six Sigma

EDUCATION

MCS, Artificial Intelligence & Data Science, University of Illinois Urbana-Champaign, 2021

Thesis: HEAP-DL, a PyTorch deep learning network with entity embeddings that predicts payer cost from claims data, explained with SHAP and Captum.

MBA, University of Illinois Urbana-Champaign, 2018

MFA & BSc, Visual Communication & Design, University of Madras

CERTIFICATIONS, AWARDS & COMMUNITIES

Certifications: PMP • Certified Scrum Product Owner (CSPO) • Certified ScrumMaster (CSM) • Six Sigma Green Belt • Certified Usability Analyst (HFI CUA) • Asana Certified Pro & Workflow Specialist

Awards: AbbVie Influencer Innovation Award (2022) • AbbVie US Commercial IMPACT Award • AbbVie Award USA

AI communities: Enterprise AI Specialist Community of Practice • Claude Code & Design Pilot (Champion) • AI Innovation Hub • UX Design Center of Excellence