

**Radu Serban**

Born: Dec-1973 / Nationality: NL

Freelance Data Scientist

A: Amsterdam

E: contact@knowledge-flows.comL: [linkedin.com/in/radu-serban-a371752](https://www.linkedin.com/in/radu-serban-a371752)

Profile: Data scientist with 15+ years of R&D experience with Machine Learning, Data Science, Big Data, Predictive Analytics. My passion is to support customers to improve their business through innovative AI solutions, e.g. predictive analytics & forecasting, Q&A chatbots, deep learning recommenders. Hands-on Machine Learning, Deep Learning & DevOps applied to text analytics, predictive analytics & recommenders. **Strengths:** Envision, Ideate & Innovate; Empathy, Collegiality, Honesty & Integrity. **Languages:** NL-EN-FR-RO.

Education & Certifications

Hands-on AI, Data Science, Machine Learning & Deep Learning generalist, focused on adding business value by text analytics, recommender systems, cloud data services, deep neural networks, and predictive analytics. As Data Science team lead, consultant & architect, followed certifications on Machine Learning (Udacity, Amazon, Microsoft, 2020), Data Science (Coursera, DataCamp, 2019), Agile Project Management (PMP,2019), Project Scrum Master (PSM-I), Fair Linked Open Data (GO-FAIR), Big Data, Cloud&IT Architecture (IBM IT Architect curriculum).

- **PhD Information Systems**, Vrije Universiteit Amsterdam (NL, 2002). Thesis: **Personal Assistant for Privacy in Cyberspace**. Graduate courses: Neural Networks, Machine Learning, Knowledge Bases in Cyberspace, Media&Ecommerce, CyberSecurity&Privacy.
- **Master Computer Science**, Polytechnical University of Timisoara (RO, 1997) Thesis: **Conceptual Search Engine**. Top 5% Math & Informatics student. EU grant for writing diploma at Vrije Universiteit Amsterdam: distributed search engine for concepts by examples.
- Diploma **Assistant Programmer/ VVO Informatics** (RO 1992). Thesis: **Expert System** for Medical Diagnosis & Diet Recommendations.

Areas of expertise**Industry skills**

- Product Retail & Marketing
- Cross-Industry Analytics& Info Services: Finance/Telecom/Energy & Utilities

Functional Skills

- Virtual Assistants & Recommenders
- Predictive Analytics, Machine Learning & Deep Learning (NLP, Forecasting, Feature Extraction, CNN, LSTM, GAN)
- Data Science Algorithms: Clustering, Recommenders, Churn, Classification
- Agile Project Management: CRISP, ITIL, SCRUM
- Business Analysis & Product Management
- IoT, Video, Speech & Text Analytics
- Cyber-security, privacy & personalization

Technical Skills

- **Data Science:** Python, R, SQL, Java, Javascript, C++, Matlab
- **Data Preparation & ETL:** KNIME, RapidMiner, Alteryx, Jupyter/Python/R, Airflow, MS Access
- **Big Data Analytics & Visualization:** Spark/Hadoop/Kafka/Hive, H2O, MLFlow; Tableau, Power BI, R Shiny, Python Flask/Django
- **AI Cognitive/Machine Learning APIs:** Deep Learning: CNN/ConvNets, LSTM, GANs, Transformers; Python Keras, Tensorflow, Torch, R Caret, H2O, Spark, Azure ML
- **Data Modelling:** SQL, RDBMS(MySQL,MSSQL,Oracle,Postgres), NoSQL(CouchDB, ElasticSearch,Neo4J)
- **Semantic Web & Linked Open Data:** RDF, SPARQL; **ML data sets:** text summarization, video analytics.
- **Enterprise Architecture:** Visio, UML, ERD, BPMN/BPEL, XML, **REST service APIs**
- **Cloud Machine Learning services:** Cloudera CDP; Apache Spark/Hive; Azure ML; Amazon ML/ EMR/ Sagemaker; Google Colab/ Kaggle/ Tensorflow/ BigQuery/ AutoML/ APIs; IBM cloud; H2O cloud
- **Statistics & Machine Learning algorithms:** Inferential&Descriptive statistics, ANOVA, PCA, **Clustering** KMeans/KMedoids/DBSCAN, **Regression** (Linear,Logistic,Lasso), **Decision Trees**, Random Forest, XGBoost, SVM, **NeuralNet**, KNearestNeighbour, SVD Matrix Factorization, **Time series** (ARIMA,LSTM)
- **DevOps/MLOps:** Git, Docker,Kubernetes,Ansible,VirtualBox,ELK/ElasticSearch, **Linux/Windows/iOS**

Selected relevant experience**Mar-2021..present: Freelance Machine Learning Data Scientist**

Freelance Machine Learning Data Scientist & AI Solution Architect providing end-to-end advice of Artificial Intelligence, Internet-of-Things, Big Data solutions. Focus is on added value of Machine Learning in Signal Analytics and NLP.

Jul-2020..Feb-2021: Client-facing Machine Learning Data Scientist – Hotel & Travel Industry

Client-facing Data Scientist providing implementation advice of Big Data solution for parallel time series forecasting & classification of price stability based on hotel price bids in Google. Designed, planned & implemented machine learning classification model and price forecasting big data solution using Spark MLlib, H2O, Jupyter/Python, Oozie, Airflow, Tableau.

Sep-2015..Mar-2020: Data Scientist Team Lead - Digital Technologies Consulting company

Acted as Principal Data Scientist providing end-to-end advice on implementing & delivery of IoT, Big Data solutions & services with Predictive Analytics & Machine Learning. Pitched, coached & led Data Science projects & internships for Smart Enterprise & Internet-of-Things. Obtained 2019 award for contribution to staffing through job recommendation product. Attended data science hackatons & congresses. Designed, sized & deployed smart services portfolio solution using IoT & Big Data. Prototyping Machine Learning, Big Data, IoT.

1. Dec-2018..Mar-2020: Team Lead Industry X.0 project proposals & internships – Building Data Science & Machine Learning capability

Led projects for building internal Machine Learning capability: 1. **Job recommender** app & chatbot to recommend, optimize & explain supply & demand job matching, Text summarization, TF-IDF, Bag-of-Words, BERT, Explainable Machine Learning. 2. **Personal virtual assistant** – enhancing virtual assistant products with chat, gesture recognition & dialog flows. 3. **Internet-of-Things Proof-of-Concept** applications: **Smart office** occupancy monitoring - learning schedules & preferences, people counting, cloud data platform for sensor data, **indoor localization, navigation & route optimization**. **Self-driving car pilot** using Q-Learning Reinforcement Learning for obstacle avoidance. 4. **Deep learning applications** for energy forecasting, text entity recognition, video object recognition.

2. Dec-2018..Jun-2019: Team Lead BI Finance / Pension Fund – Enterprise Data Warehouse Business Data Enrichment

BI report migration from on-premise to cloud data lake transition. Led an agile team performing data discovery, data quality assessment & change impact assessment of data reporting workflows while migrating enterprise data warehouse. Prioritized business entities migrated to enable data science on consolidated pension fund service consolidation. 100+ BI reports & apps redesign, refactoring & retesting.

3. Sep-2018..Dec-2018: Team Lead Proof-of-Value / Health & Public Sector – MyMedicine Smart Assistant for Medication Abroad

Design&develop virtual assistant app & cognitive data services for traveling abroad with medication, using IBM Watson cloud AI services. Extracting keywords, automatic tagging from PDF and image documents, NLP, text summarization & translation services.

4. Jun-2018..Sep-2018: Data Scientist Finance / Asset Management Finance Innovation Lab – Speech Emotion Recognition in Earnings Calls

Speech emotion recognition, text&audio analytics & web-based cloud services for summarization of investor earnings calls to estimate portfolio value impact. Speech text summarization, sentiment analysis & emotion recognition models from earnings calls transcripts.

5. May-2018..Jun-2018: Data Scientist Product Retail/Product company/Portfolio Recommendation & Dynamic Pricing for Outlet Profitability

Design & implement data-driven recommender for product & price discounts to increase outlet profitability. Price data scraping & trend analysis, rule mining & market basket analysis from POS transaction logs, Google Places API data to produce outlet profitability recommendations, portfolio optimization & discounts.

6. Feb-2018..Jun-2018: Data Scientist Automotive / Automotive– Customer Segmentation Business Logic for Campaign Management

Design & prototype data-driven validation scenarios for customer segmentation for marketing services for connected car. Prepared data-driven customer journey marketing campaigns for Customer 360° view after cloud data consolidation.

7. Feb-2018..May-2018: Agro Industry / Multi-National Agro Business – Data Scientist for Data Driven Digital Customer Journey

Prepare & validate customer segmentation with clustering techniques & model tuning, to support business persona characterization, digital farmer customer journey & improve sales effectiveness. Validated clustering models for corn market & applied transfer learning.

8. Nov-2017..Jan-2018: Big Data DevOps Architect Advanced Technology/ Chip industry – PoC for Operational KPIs & Statistic Process Control

Design & prototype data architecture & data ingestion for machine data for Statistics Process Control. Produced statistical data visualization & outlier detection for chipset machines based on machine health diagnostics. Designed, implemented & deployed operational KPI reporting improvement & IoT data visualization in Configuration Management & Spare Parts Planning dashboards.

9. Sep-2017..Jan-2018: Data Scientist Energy & Utilities / Energy industry – PoC for Analytics-as-a-Service

Contributed assets for offering Analytics-as-a-Service for call center data analytics, customer segmentation, cluster analysis. Performed call center & web log analysis for workload demand prediction, agent workforce effectiveness, KPI impact. Performed hypothesis testing for cross-channel interactions, aimed at measuring & shifting interactions/traffic from phone calls towards online.

10. Apr-2017..Aug-2017 Advanced Analytics Product Owner & Consultant / Oil & Gas industry – Security Services Information Risk Platform

Prepared Advanced Analytics roadmap, architecture & use cases for Cyberdefense real-time analytics services. Worked with client Threat Analytics & Network Ops team to improve Machine Learning services & prepare data for analysis. Product Owner & Solution Architect of Threat Analytics platform. Analyzed & flagged big data transaction logs to detect malware signatures & patterns of malicious behavior.

11. Nov-2016..Mar-2017: Data Scientist Financial Services / Pension Funds – Call Center Next Best Question/Action

Applied clustering, classification & predictive modelling to improve customer service by predicting the next questions from customers. Led a data science team defining analytics features, implementing, benchmarking & tuning classification algorithms. Applying Data Science algorithms on Spark/Hadoop big data platform for predicting the questions topics to be asked by Call Center clients, to reduce service response times & increase customer experience.

12. Oct-2016..Nov-2016: Public / Town Hall – Data Science Lab platform and Text Analytics Data Services advisor

Set up secure Data Lab platform for doing data science in Amazon cloud for Data Science teams of Anti-Fraud Data Brigade of Town Hall. Reusable projects for benefits claim NLP/text processing, keywords & feature extraction for fraudulent claims, claim classification.

13. Mar-2016..Jun-2016: Cross-industry – Smart Services data platform use cases / Digital Technologies Consulting

Set up smart services portfolio for Text, IoT, Video, Speech & Signal Analytics, cognitive & deep learning use cases. Pilot projects: FAQ generator, text sentiment analysis, workload demand prediction, video object detection, classification & tracking, occupancy & popularity heatmaps, indoor people counting & occupancy tracking, speech recognition & quiz accuracy measurement in speech audio clips.

14. Feb-2016..Mar-2016: RPA Architect Energy & Utilities / Energy Provider – Robotic Process Automation delivery

Rolled out email response process automation & RPA/robotics delivery in call center. Formalized business process automation planning.

15. Oct-2015..Oct-2016: Telco / KPN – Big Data expert on predictive maintenance, BI analytics transformation & clickstream processing

Real-time device health analytics, from data ingestion, to querying & reporting from Secure Data Lake. Modern predictive maintenance based on model health signals from big data lake, customer profiling, outlier detection, root cause analysis. Streamlined data delivery for unified BI/Big Data Analytics transformation & Data Quality platform for commercial steering. Analyzed big data lake clickthrough & conversion rate of visits, extracted most wanted features for products&services, performed customer profiling for business personas.

Jun-2014..Sep-2015: BI Solution Consultant BI – Analytics Solution Consulting company

Self-service BI dashboards integrating self-service BI tool with Big Data & social media (LinkedIn, Twitter, Facebook) & Google services APIs. Supported pre-sales BI dashboards & analyses, service virtualization & big data analytics pilot projects for Small & Medium companies.

Mar-2014..May-2014: Data Science DevOps - Real-time platform for in-app targeted advertisements – Adtech startup

Decision model building for recognizing returning customers part of AWS big data solution for mobile apps targeted ad marketing campaigns. Real-time customer classification, ad bidding & re-targeting based on customer profiles extracted from clickstream big data.

Apr-2013..Sep-2013: Marketing & Sales Support Implementation Consultant – Car leasing company

Marketing & Sales Support mobile & web services: customer profiling, customer path optimization, discount marketing strategies, nearest POI mapping & routing, A/B testing, clickthrough rate optimization. Implemented web & mobile customer activity tracking & profiling.

Jul-2011..Oct-2012: R&D Post-doctoral Researcher on Energy Efficiency & Emergent Coordination – Fundamental research R&D company

Fundamental EU research in adaptive task scheduling & planning based on learned behaviors. Applications to **self-organization in incident response**; **smart buildings** sensor monitoring, extracting occupancy patterns, **predicting occupant behavior**; data center **optimal computing workload allocation strategies** based on observed & predicted behaviors. Published articles, reports, code in EU R&D projects: 1. algorithmic & self-organizing networks for **planning & resource allocation for incident response**; 2. multi-constraint solving & **workload optimization in federated data centers**; 3. **adaptive smart buildings** that learn & optimize emissions footprint & business activities costs.

Sep-2007..Jun-2011: Enterprise & Services Architect – Multi-National Consulting company

Designed, delivered & assessed enterprise service solutions as IT Architect in IBM Design Authority. Data models, Application Services, solutions for Information Architecture, Business Process Simulation, IT Outsourcing & Cost Forecasting enterprise services for clients in Finance, Telecom, Media / Distribution, Energy & Public sector in major IBM NL accounts. A few major projects:

1. Tax Office/Douane: Export/Import Document Management workflow system Integration with risk assessment & inspections
2. Telecom: Quality Assurance service management of Order-to-Pay, Procure-to-Pay workflows on enterprise services in 100+ servers farm
3. Bank M&A services: Post Merger&Acquisition application landscape rationalization & cost-based digital transformation wave planning
4. Bank: SEPA payment reconciliation in electronic payment workflow & portal (J2EE solution)
5. Publisher: OpsBank research summarization portal & scientific publications enterprise data warehouse extraction & summarization.
6. Energy & Utilities: Load test robustness in simulations&reporting for large scale roll-out of big data solution automatic meter reading.

Jan-2004..Aug-2007: Post-doctoral Senior Researcher on Text & Process Patterns – Vrije Universiteit, Amsterdam

Led project milestones, published articles, designed & implemented pilots/prototypes, coordinated AI Master projects (AI Kaleidoscope).

1. Analyzed activity patterns in large business activity logs for mobile surveillance to detect communication bottlenecks in Cyber-Incidents;
2. Simulation & analysis of decision performance of decentralized coordination strategies & self-organization models in adaptive data-driven Command & Control (C2) systems;
3. Applied NLP&text mining, automated tagging, text-to-model transformation, executable model learning&simulation in medical guidelines.

Oct-2002..Dec-2003: Web Data Expert – Security & Customer Profiling in Real Estate Online Transactions – Real Estate company, Amsterdam

User profiling from activity logs & real estate data validation & analytics services for real estate brokers (NVM/ERA).

Feb-1998..Sep-2002: PhD, Teaching & Research Assistant - Vrije Universiteit, Amsterdam

PhD diploma in Information Management: Personal assistant for privacy & Machine Learning from electronic transactions (shopping, voting, messaging). Published articles, co-organized IFIP 11.3 Database Security conference & attended Security by Design summer school. Acted as teaching assistant for Knowledge Bases in Cyberspace. Acted as peer reviewer for Elsevier Data & Knowledge Engineering journal.