From Chip to Applied AI : Techniques and Lessons in Building Explainable AI

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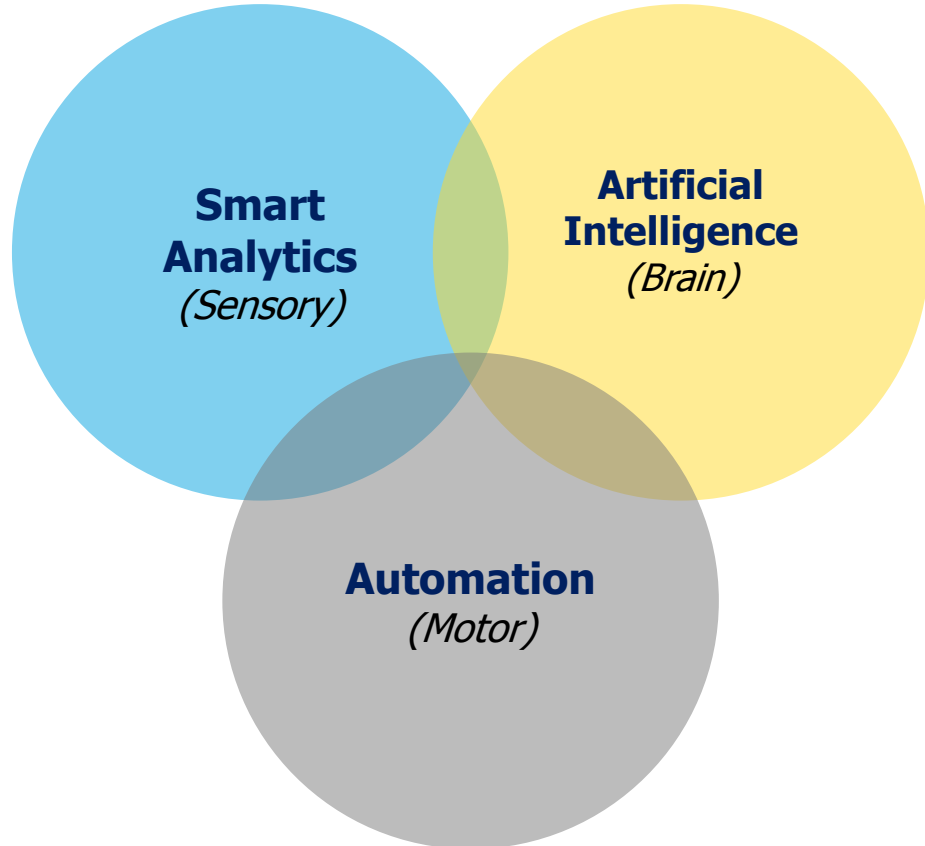
Wipro HOLMES & Automation Ecosystem

Vinutha B.N.

Consulting Partner & Head

Wipro AI Research charter

Our 3A approach : Analytics, AI, Automation

Data Operations	Data Discovery Platform Historical Analysis Model Building Data Connect Big Data Platform	**Wipro Analytics**
Analytics	Descriptive Analytics Predictive Analytics Prescriptive Analytics	**wipro** digital
IoT	Sensor Deployment Alerts, Actions Streaming	
Artificial Intelligence	Text | Image | Search | Chat | AO Operations	
Automation	Predictive Maintenance Monitoring & Control Customer Experience	**wipro** holmes

Wipro HOLMES Platform Frameworks

Deep Extraction Framework for Text (DEFT)
Linguistics & Deep Learning based Text extraction Framework

Chat
Smart virtual assistant to improve the productivity and efficiency of workforce

Cognitive Search
Information extraction & understanding framework to support smart queries

Mimictron
Mimic user behavior through goal oriented actions using deep learning

Image Processing
Unstructured document Text/Image Processing through OCR, NLP & Machine learning
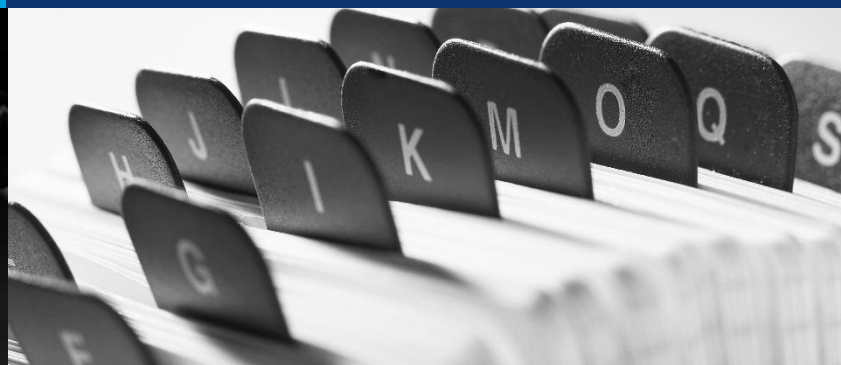
Automation Studio
Single interface to consume the above frameworks & create CPA and RPA solutions

User Experience (Chat)

30-50% enhancement in user experience

Auto Triaging

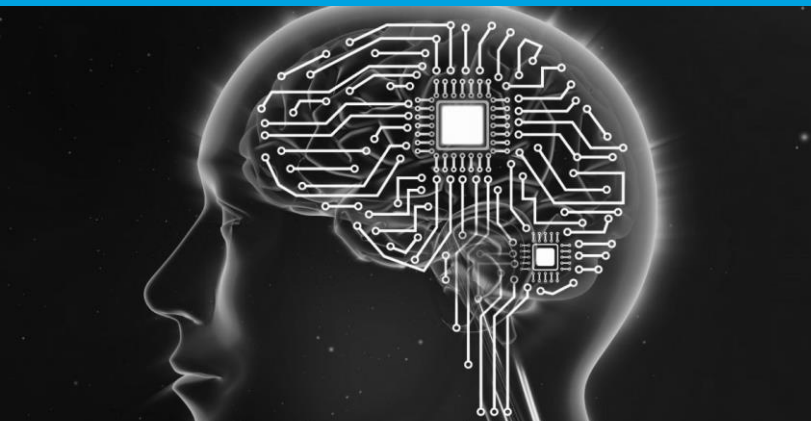**20%** reduction in turn around time (MTTR)

End Point Management

90% issues handled by human agents resolved with self service bots

wipro holmes for IT

SME Smart Assist

37% reduction in ticket volumes (Policy, SOP, FAQ, Self-help/heal)

Requirements Traceability

~100% untested requirements identification

Zero Touch IT Ops

~30% OPEX reduction with over 90% reduction in P1s

Document Digization

70% reduction in search time, **35%** cost savings

Contract Intelligence

90% effort saving (down to minutes)

Anomaly Detection

2.5% leakage prevented in overall Procure2Pay spend

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Compliance

Up to **40%** reduction in processing effort & cost

Drawings Digization

40% cost savings, **85%** productivity increase

Fraud Detection

40x improvement in prediction, **90%** recall with 71% precision

Demo: E-KYC (Enterprise Know Your Customer)

Our research charter driving our platform roadmap

Challenges we are solving

Data : quality, quantity | debiasing of data | Slow & resource-intensive **learning cycles |Human-machine** : Quality of interactions & Trust | **Machine-Machine**: Lack of transparency | Human in the loop for controls & approvals even for low-risk activities **slows outcome realization**

We are focusing on

Explainable AI **Transparent AI** **Human-first** **Interpretable AI** **Auditable AI**

Zooming in on Explainable AI

- How important was the ith feature in determining an outcome?
- Why is the output of a visual system compatible with visual evidence?
- Can the system justify why a certain prediction was made?

Why should someone trust my system? How can I build an AI system that is trustworthy?

AI systems in general, Deep learning networks in particular, work as black box & output the decision. Explainable AI (XAI) reasons out their behavior. Can we provide insight to the behavior of a classifier model by understanding what the neurons learn and what features of the input influence a particular class?

Demo: Explainable AI

What you should keep in mind

- ✓ Build strong mathematical skills

- ✓ Go one level deeper – understanding and writing (not just knowing) algorithms will be key

- ✓ Hardware skills are as important – FPGA, neuromorphic

- ✓ Read extensively, but use literature as a reference, not as the bible

- ✓ Building enterprise-ready code starts at the grassroots – it's all about the outcome

- ✓ Diversify and think of all aspects – so you can be the bridge between academia and industry

Thank you! Questions?

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