September 25 - 27, 2018
Amsterdam, The Netherlands

OPEN NETWORKING //
Integrate, Automate, Accelerate
Artificial Intelligence

AI, the next Digital wave for Telcos

Dr Jamil Chawki
Orange
The AI development has speed-up since 2012

1. Development of **Deep Learning** neural network (100 layers & millions of neuron)
2. Increase of Graphics Processing Unit **GPU** processing (x50 in 3 years)
3. Availability of **Millions of labeled data**

*We are at a decisive moment in history in terms of innovation rate & disruptive potential of AI, in all fields:* Stéphane Richard, CEO of Orange (Viva Technology Event, 2017)

Object-recognition rate in an image
74% in 2011, 88% in 2013  
➢ 97% today
ML, DL & AI?

• **Machine Learning**: the ability of computer system to *learn* from a dataset or sensors without being explicitly programmed.

• **Deep Learning**: a *class of machine learning* methods based on artificial neural networks with many layers “deep architectures”.

• **Artificial Intelligence**: intelligence displayed by machines using Machine and Deep Learning technologies.
Main ML & DL Algorithms

**Unsupervised**
- Clustering
- Dimensionality reduction
- Association Analysis (Rules)

**Supervised**
- Regression
- Decision Trees
- Classification

**Reinforcement Learning**
- Q-Learning
- Deep Q Network
- State Action Reward SA

**Neural Networks:**
- Convolution Neural Network CNN
- Recurrent Neural Network RNN
- Generative Adversarial Networks GAN
AI Telco use cases

1. Customer services & support

2. Marketing engagement

3. Network & Cloud infrastructure ‘AIOps

4. Security

& Enterprise Apps: Finance, Smart cities, Medical, Automotive, Transportation
Acumos AI open source project: AI ecosystem for Telcos
AI Model lifecycle management platform

1. **Harmonization** across a range of AI tools and frameworks (ML & DL libraries)
2. **Onboard and manage** AI models
3. **Share** AI solutions in a Marketplace
4. **Deploy** AI solutions in a target environment as a Container
Acumos AI proposes a user journey for AI Solutions development

Modeler
AI model On-boarding
- Import model artifacts required by template
- Store in repository
- Package and deploy as microservice

Analyst
Solution Flow Design Studio
- Chain together micro-services
- Package and submit to Marketplace catalog
- Test & validate

Publish
Solution Marketplace Catalog
- Searchable catalog of solutions
- Enter/Read reviews
- Adapt to data set types

User
Deploy
- Select solution & Connect to data set
- Deploy to runtime environment
- Improve model accuracy
Acumos AI: first ‘Athena’ Release planned for November 2018
Thank You