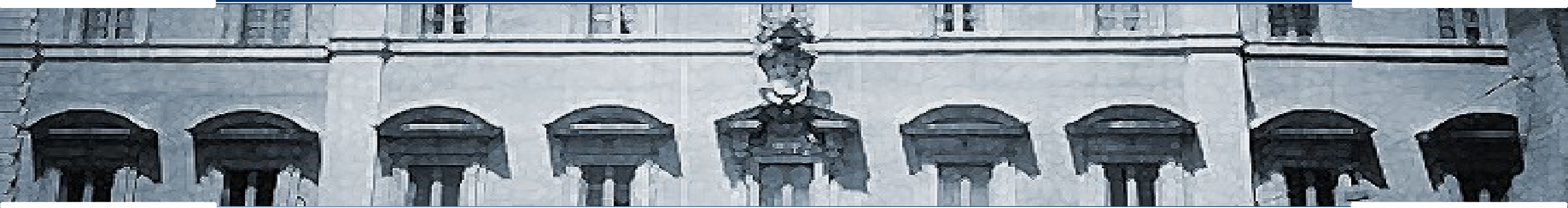


ABI



Il settore bancario: opportunità, rischi e prospettive

Pietro Scabellone

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POTENZIALITA' INFORMATIVE E SFIDE METODOLOGICHE
NELL'UTILIZZO DEI BIG DATA. IL CASO DEI SERVIZI FINANZIARI

Roma, sede FeBAF, 12 giugno 2018

ABI

LA RISPOSTA E' AI

L'intelligenza artificiale è la risposta, ma ... a quale domanda?
AI non serve solo a promuovere l'efficienza e il risparmio di costi

USE CASES

Interventi sul business model, creare innovazione nei servizi alla clientela,
ottimizzazione dei processi aziendali: tutto ciò implica nuovi rischi?

AI e DIMENSIONE AZIENDALE

L'approccio AI è indipendente dalla posizione di mercato

RISORSE UMANE

Selezione, formazione, motivazione e interfunzionalità

DATA QUALITY

La qualità del dato è punto di partenza,
ma può diventare il punto di arrivo dell'applicazione dell'AI

PIU' TECNICHE INSIEME

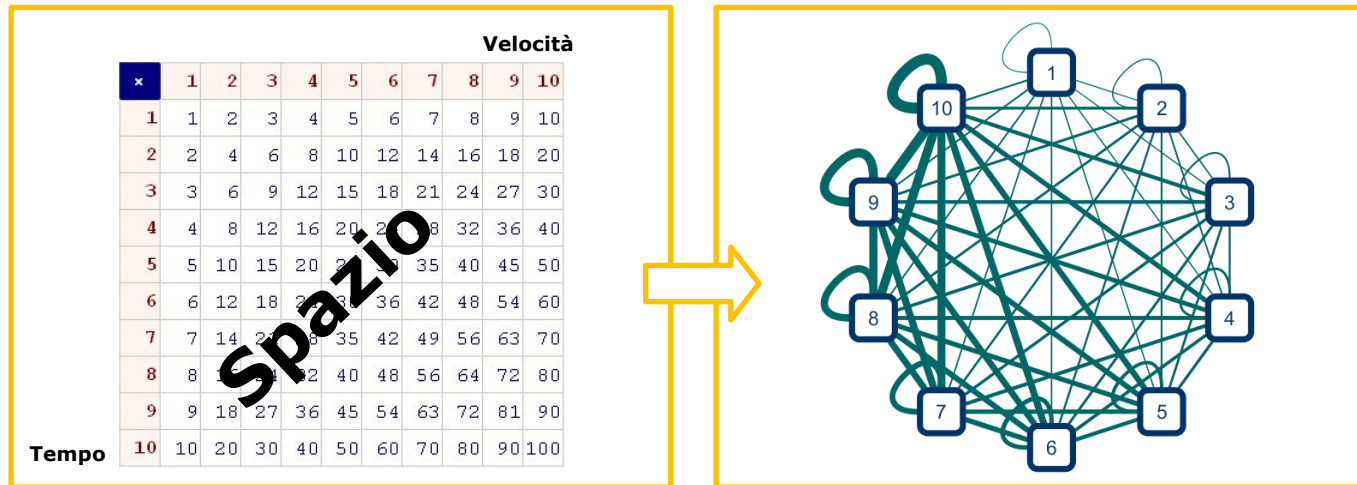
Es. computer vision, sensor fusion, unsupervised+deep learning...

TRAINING DEI MODELLI

Fino a che punto si sostituisce alla raccolta dati?

Innovazione e "learning"

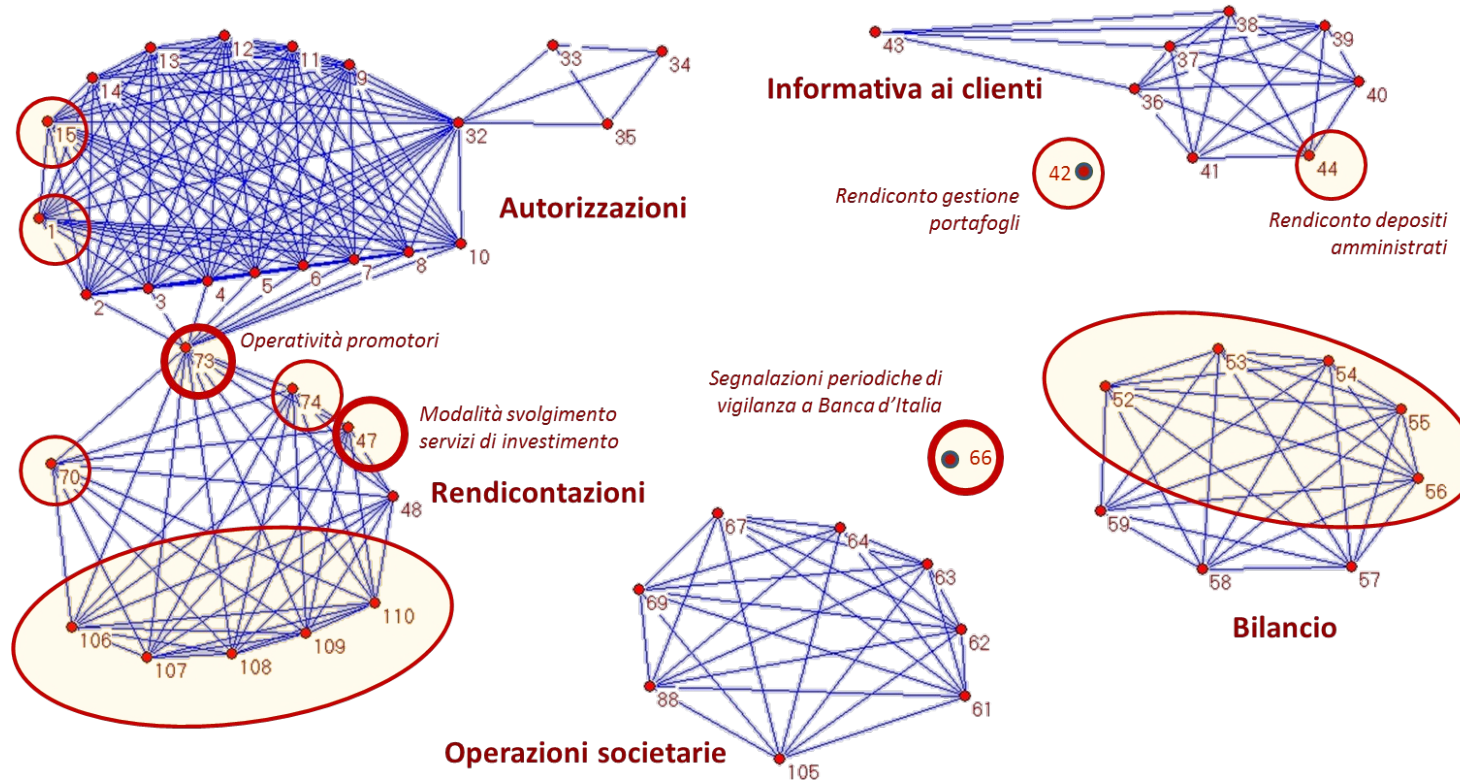
Innovazione è anche usare approcci nuovi per aspetti noti.
Un esempio: il network della tavola pitagorica



- L' Artificial Intelligence non è ancora una commodity: richiede innovazione
- Il successo arriva per gradi, attraverso una serie di "minimum viable products"

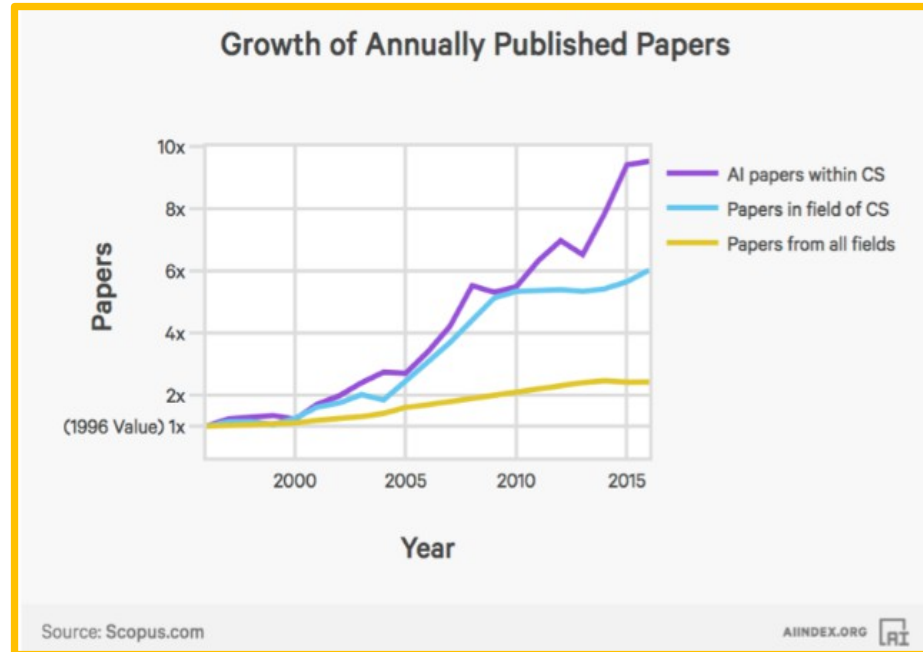
Esempio 1: innovazione e impact assessment

Misurazione oneri amministrativi:
dalla gestione aziendale ("network") degli adempimenti ("nodi") alla rilevazione dei costi



Cfr: *La qualità della regolazione nell'esperienza della Consob*, DP CONSOB n. 6, aprile 2016

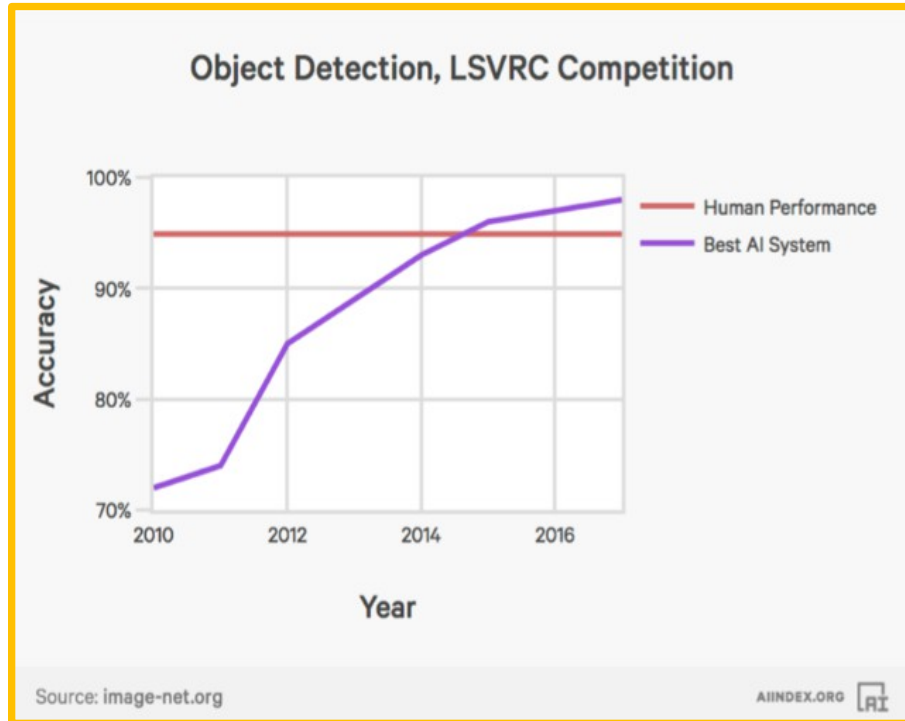
Nella Computer Science (CS) sono in forte crescita le pubblicazioni su temi di intelligenza artificiale



- Artificial Intelligence non si sviluppa solo per dati, GPU e memoria
- "AI-learning" oggi è più una necessità umana che della macchina

Stanford Artificial Intelligence Index

In taluni campi, la performance (migliore) dell'intelligenza artificiale è superiore a quella (media) dell'uomo

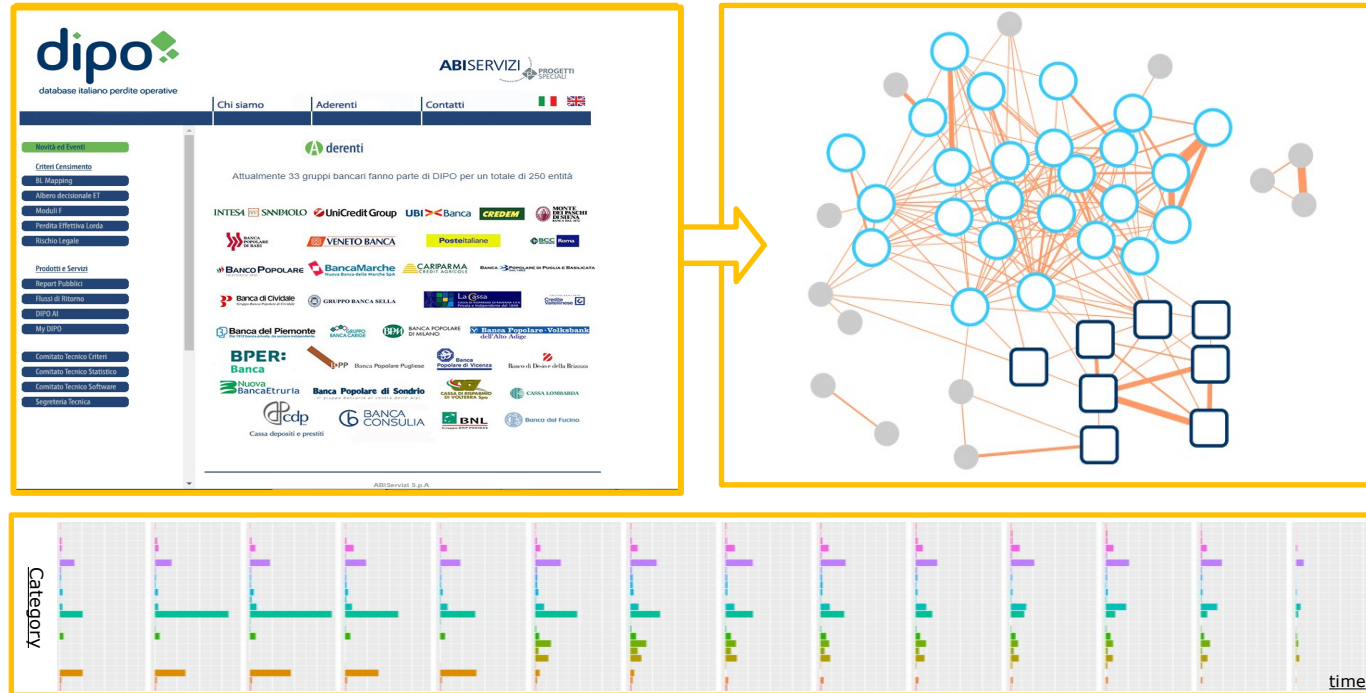


- Nel training dei modelli è sempre utile considerare quale benchmark il limite umano

Link: [AII](#)

Esempio 2: unsupervised learning e lettura rischi operativi

Weighted co-expression network analysis (WGCNA) applicata ai dati DIPO

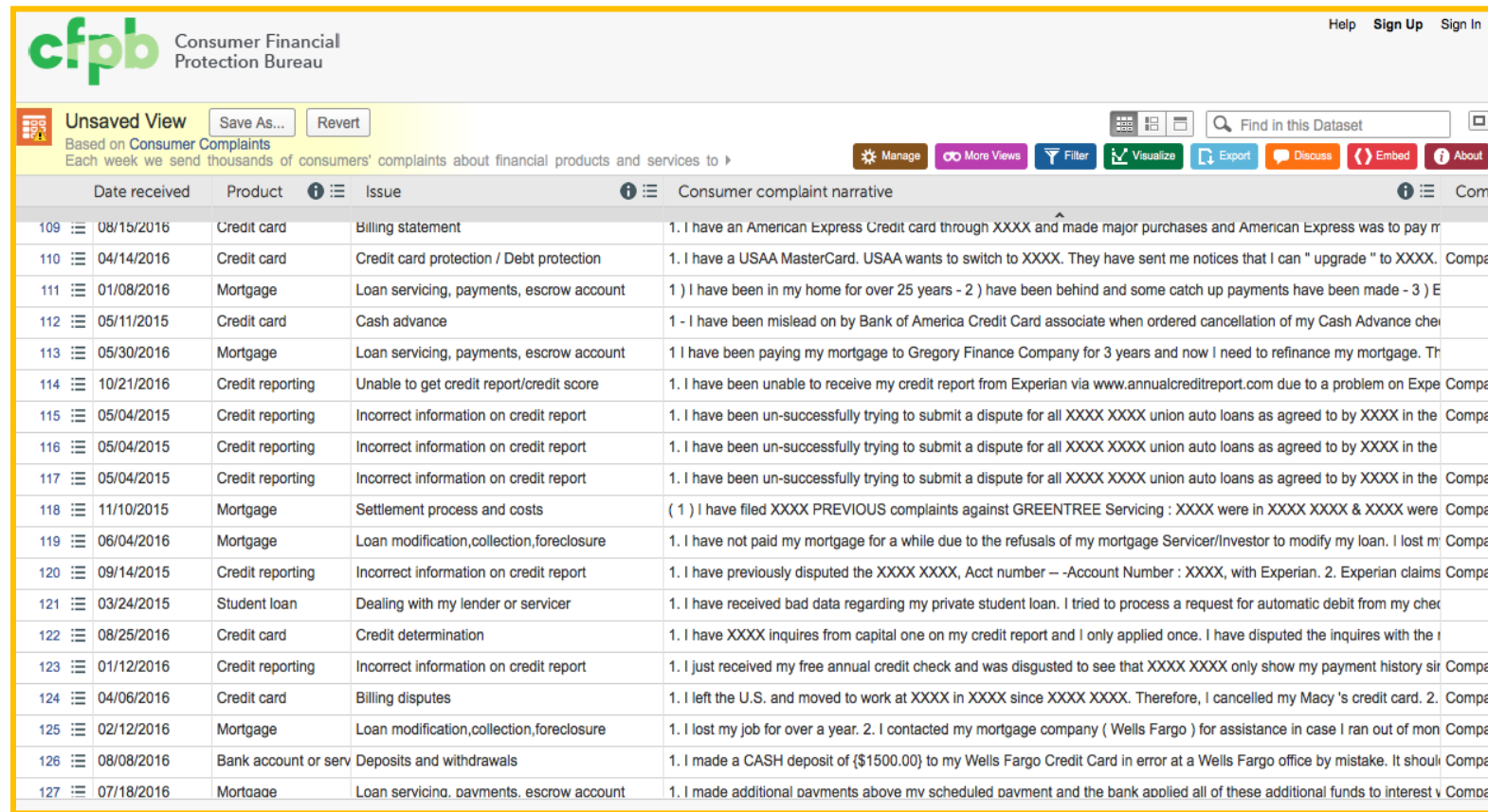


- Step 1: Data viz e cleaning
- Step 2: Clustering di eventi e losses
- Step 3: Aggregazione in "moduli"
- Step 4: Costruzione del network
- Step 5: Identificazione dei nodi rilevanti ("hubs")
- Step 6: ...

Links: [DIPO](#) [WGCNA](#)

Esempio 3: il database dei reclami (in USA)

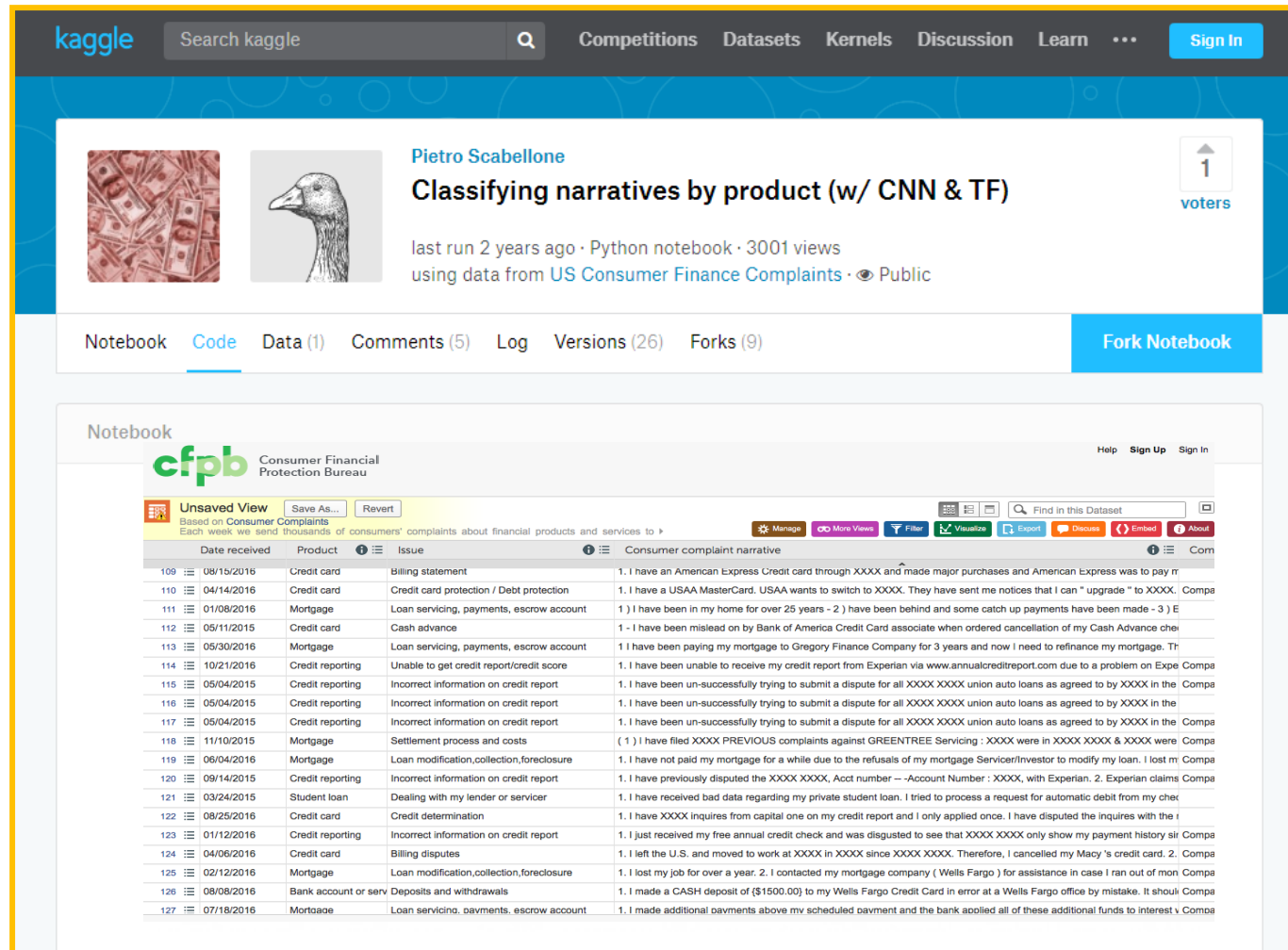
Training dei modelli a partire dai dati disponibili sul web



| | Date received | Product | Issue | Consumer complaint narrative | Com |
|-----|---------------|----------------------|--|--|-----|
| 109 | 08/15/2016 | Credit card | Billing statement | 1. I have an American Express Credit card through XXXX and made major purchases and American Express was to pay m | |
| 110 | 04/14/2016 | Credit card | Credit card protection / Debt protection | 1. I have a USAA MasterCard. USAA wants to switch to XXXX. They have sent me notices that I can " upgrade " to XXXX. Compe | |
| 111 | 01/08/2016 | Mortgage | Loan servicing, payments, escrow account | 1) I have been in my home for over 25 years - 2) have been behind and some catch up payments have been made - 3) E | |
| 112 | 05/11/2015 | Credit card | Cash advance | 1 - I have been mislead on by Bank of America Credit Card associate when ordered cancellation of my Cash Advance che | |
| 113 | 05/30/2016 | Mortgage | Loan servicing, payments, escrow account | 1 I have been paying my mortgage to Gregory Finance Company for 3 years and now I need to refinance my mortgage. Th | |
| 114 | 10/21/2016 | Credit reporting | Unable to get credit report/credit score | 1. I have been unable to receive my credit report from Experian via www.annualcreditreport.com due to a problem on Expe Compe | |
| 115 | 05/04/2015 | Credit reporting | Incorrect information on credit report | 1. I have been un-successfully trying to submit a dispute for all XXXX XXXX union auto loans as agreed to by XXXX in the Compe | |
| 116 | 05/04/2015 | Credit reporting | Incorrect information on credit report | 1. I have been un-successfully trying to submit a dispute for all XXXX XXXX union auto loans as agreed to by XXXX in the | |
| 117 | 05/04/2015 | Credit reporting | Incorrect information on credit report | 1. I have been un-successfully trying to submit a dispute for all XXXX XXXX union auto loans as agreed to by XXXX in the Compe | |
| 118 | 11/10/2015 | Mortgage | Settlement process and costs | (1) I have filed XXXX PREVIOUS complaints against GREENTREE Servicing : XXXX were in XXXX XXXX & XXXX were Compe | |
| 119 | 06/04/2016 | Mortgage | Loan modification,collection,foreclosure | 1. I have not paid my mortgage for a while due to the refusals of my mortgage Servicer/Investor to modify my loan. I lost m Compe | |
| 120 | 09/14/2015 | Credit reporting | Incorrect information on credit report | 1. I have previously disputed the XXXX XXXX, Acct number -- -Account Number : XXXX, with Experian. 2. Experian claims Compe | |
| 121 | 03/24/2015 | Student loan | Dealing with my lender or servicer | 1. I have received bad data regarding my private student loan. I tried to process a request for automatic debit from my che | |
| 122 | 08/25/2016 | Credit card | Credit determination | 1. I have XXXX inquires from capital one on my credit report and I only applied once. I have disputed the inquires with the | |
| 123 | 01/12/2016 | Credit reporting | Incorrect information on credit report | 1. I just received my free annual credit check and was disgusted to see that XXXX XXXX only show my payment history sir Compe | |
| 124 | 04/06/2016 | Credit card | Billing disputes | 1. I left the U.S. and moved to work at XXXX in XXXX since XXXX XXXX. Therefore, I cancelled my Macy's credit card. 2. Compe | |
| 125 | 02/12/2016 | Mortgage | Loan modification,collection,foreclosure | 1. I lost my job for over a year. 2. I contacted my mortgage company (Wells Fargo) for assistance in case I ran out of mon Compe | |
| 126 | 08/08/2016 | Bank account or serv | Deposits and withdrawals | 1. I made a CASH deposit of {\$1500.00} to my Wells Fargo Credit Card in error at a Wells Fargo office by mistake. It shoul Compe | |
| 127 | 07/18/2016 | Mortgage | Loan servicing, payments, escrow account | 1. I made additional payments above my scheduled payment and the bank applied all of these additional funds to interest v Compe | |

Link: CFPB

Esempio 3: deep learning e classificazione dei reclami (in USA)



kaggle Search kaggle Competitions Datasets Kernels Discussion Learn [Sign In](#)

Pietro Scabellone
Classifying narratives by product (w/ CNN & TF)
last run 2 years ago · Python notebook · 3001 views
using data from [US Consumer Finance Complaints](#) · Public

1 voters

Notebook [Code](#) Data (1) Comments (5) Log Versions (26) Forks (9) [Fork Notebook](#)

Notebook **cfpb** Consumer Financial Protection Bureau [Help](#) [Sign Up](#) [Sign In](#)

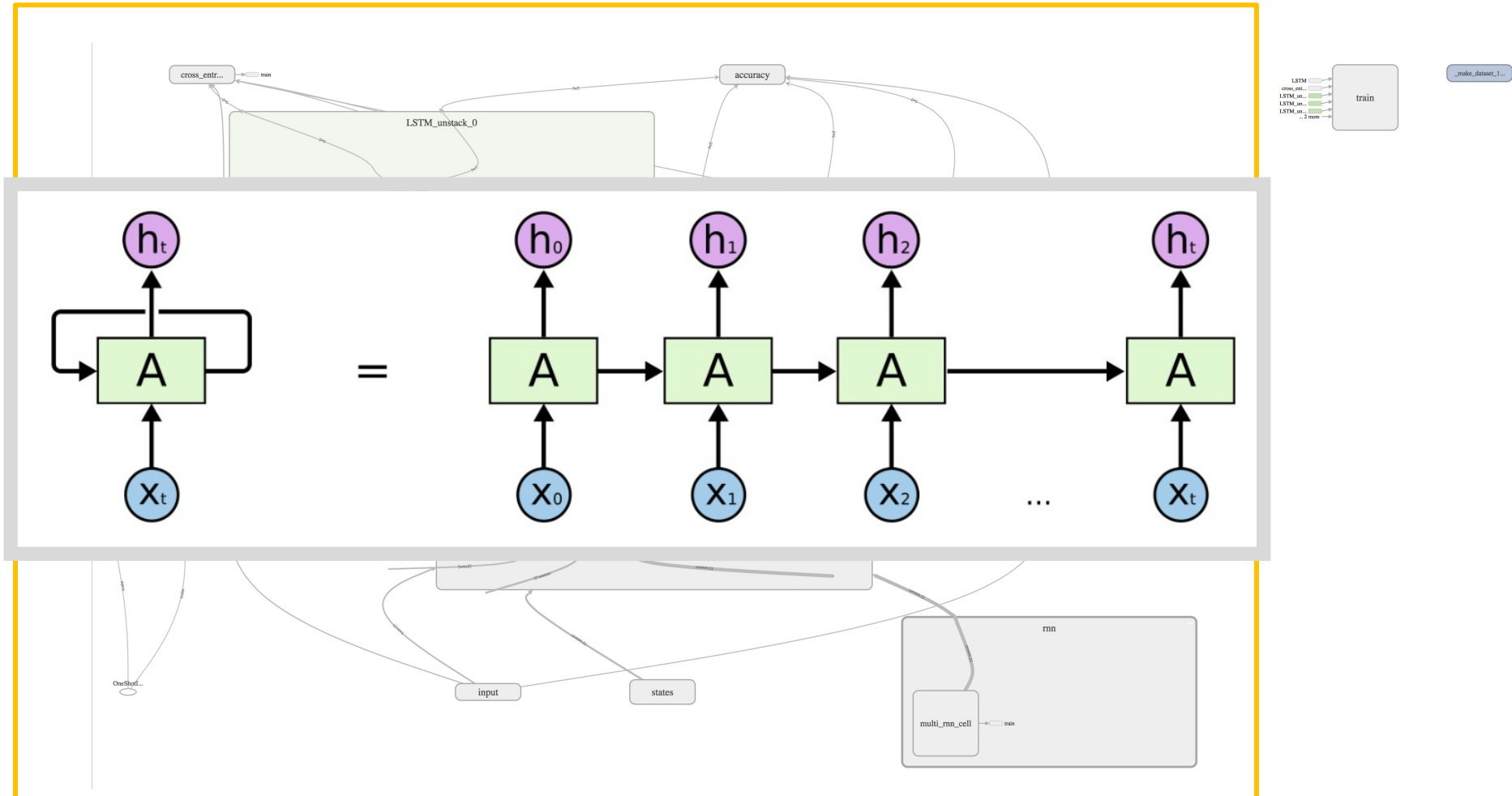
Unsaved View [Save As...](#) [Revert](#) [Find in this Dataset](#)

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| 06/04/2016 | Mortgage | Loan modification, collection, foreclosure | 1. I have not paid my mortgage for a while due to the refusals of my mortgage Servicer/Investor to modify my loan. I lost m Compa |
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| 03/24/2015 | Student loan | Dealing with my lender or servicer | 1. I have received bad data regarding my private student loan. I tried to process a request for automatic debit from my cher |
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Link: Kaggle

Black-box, complessità, ...

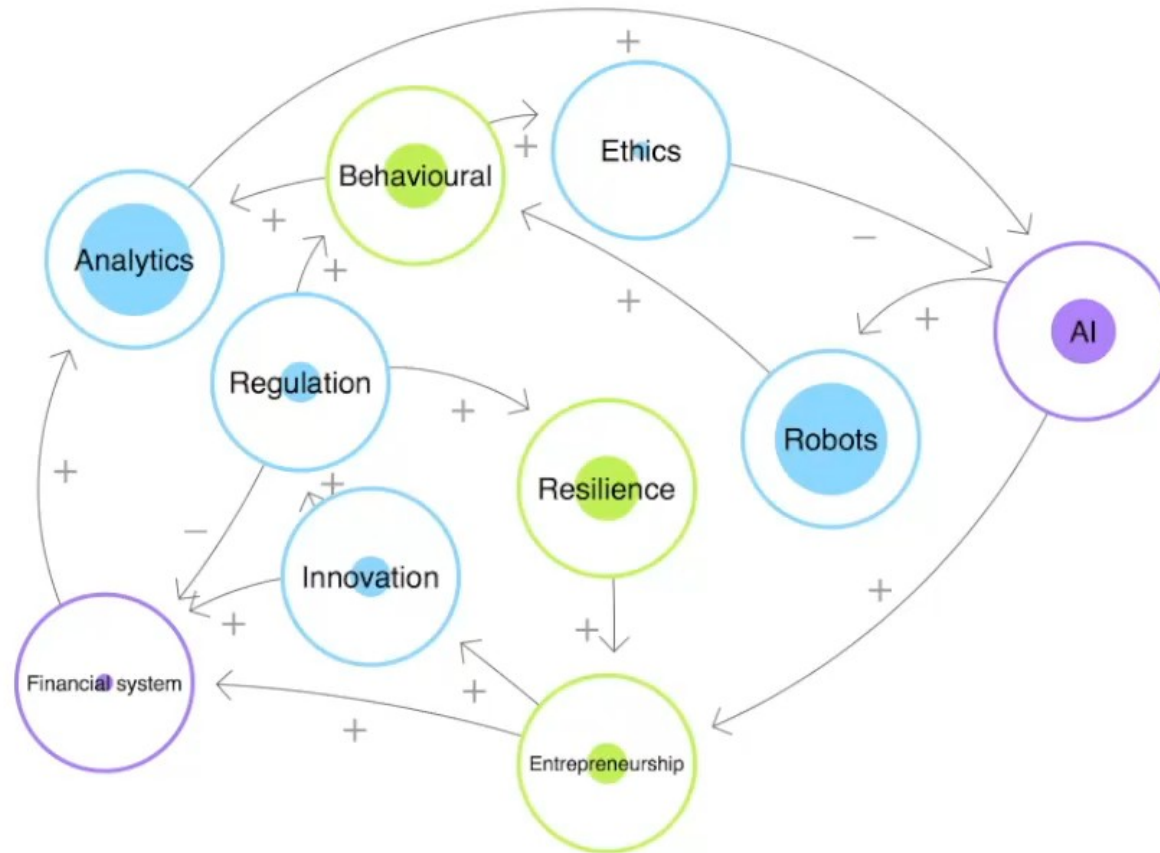
Anche l'interpretazione di un plain-vanilla LSTM-RNN (Long Short-Term Memory Recurrent Neural Network) per l'analisi delle serie temporali richiede una preparazione specifica



Link: TensorBoard

Conclusioni e prospettive

Un'ipotesi di dinamica degli effetti a livello di sistema



Link: [LOOPY](#)

Grazie per la vostra attenzione!