



EXTRAÇÃO E COMPARAÇÃO DE ASSINATURAS EM DOCUMENTOS DIGITALIZADOS

QUEM SOMOS



Marcos Marques
Cientista de Dados

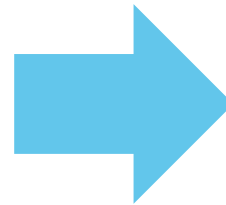


Lucas Arrigoni Iervolino
Cientista de Dados

MOTIVAÇÃO



Gargalo na fila no
balcão

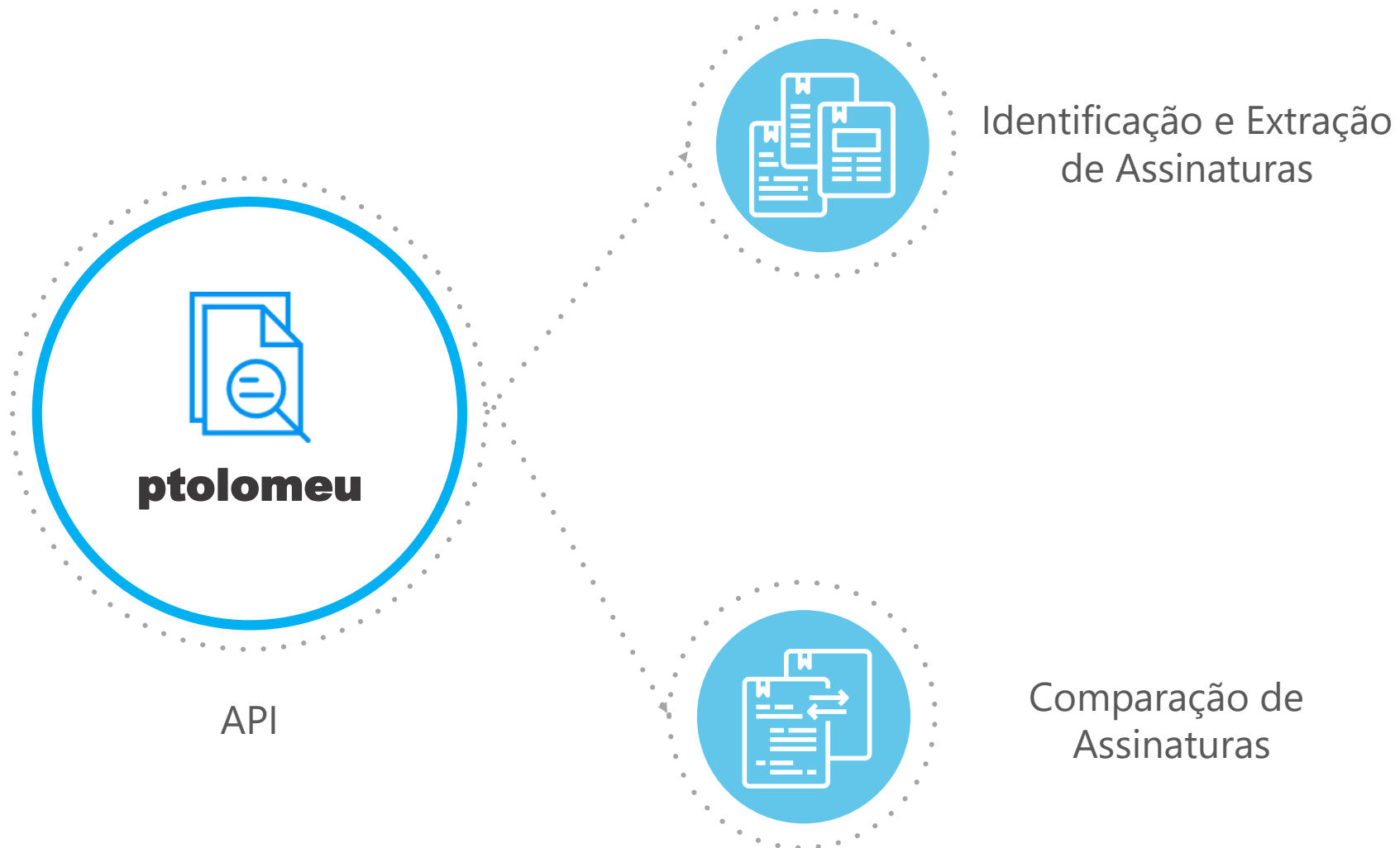


Gargalo nos setores
de análise

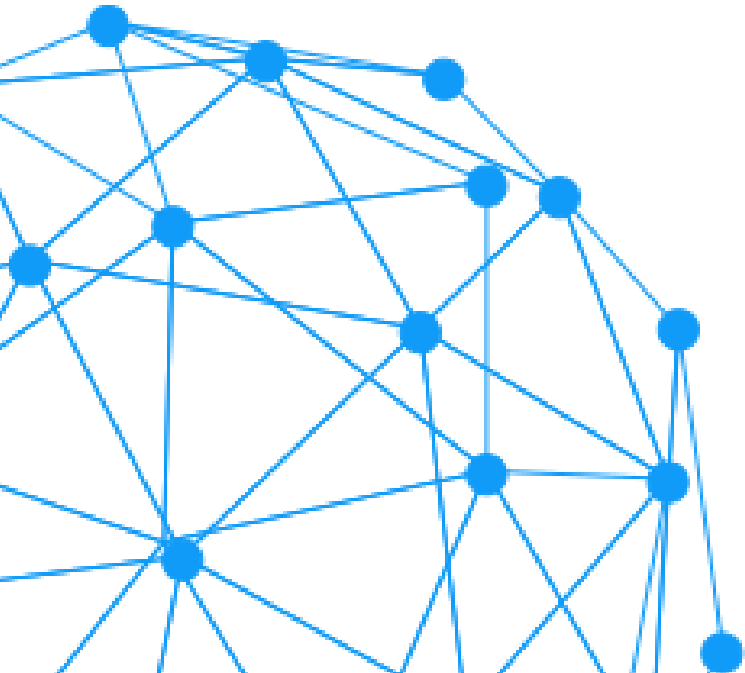
PROBLEMA

Como aumentar a **eficiência** em processos de **análise** de **documentos** digitalizados?

SOLUÇÃO



IDENTIFICAÇÃO E EXTRAÇÃO

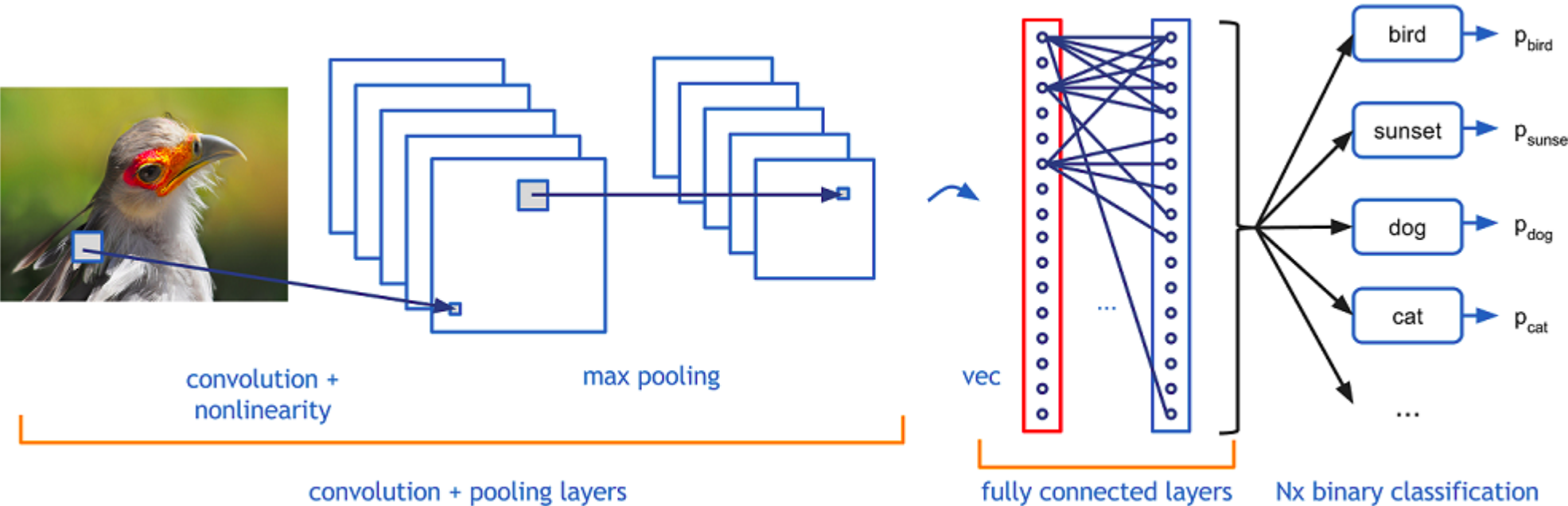


IDENTIFICAÇÃO E EXTRAÇÃO

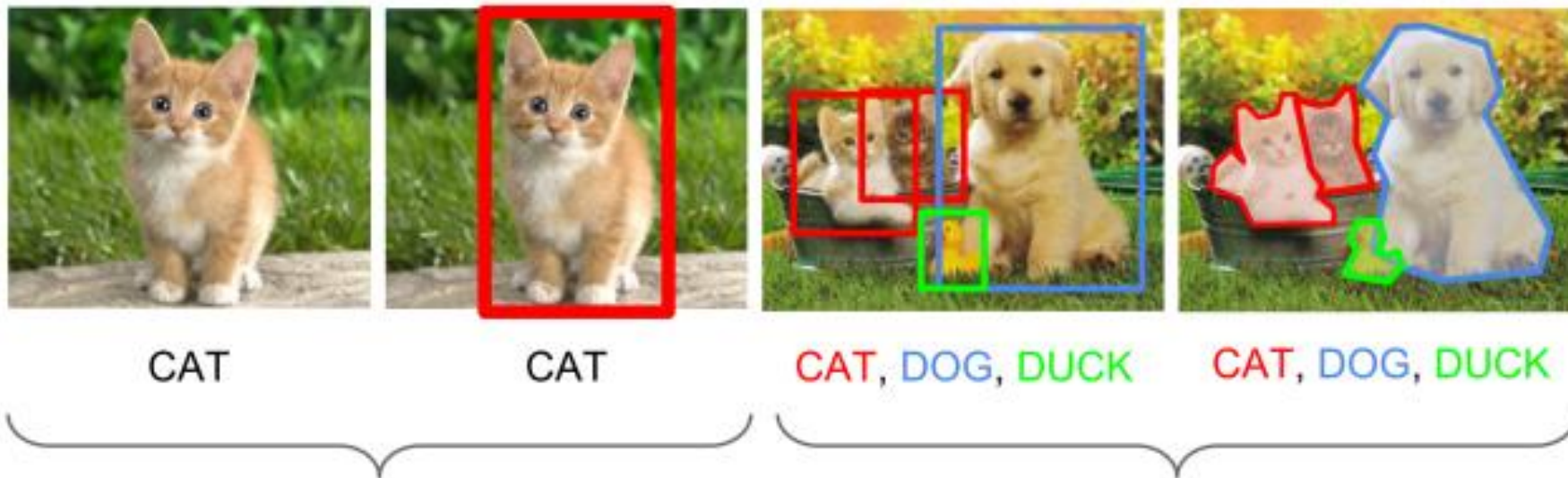


- Tarefa de reconhecimento de imagem
- Extração de padrões
- Localização

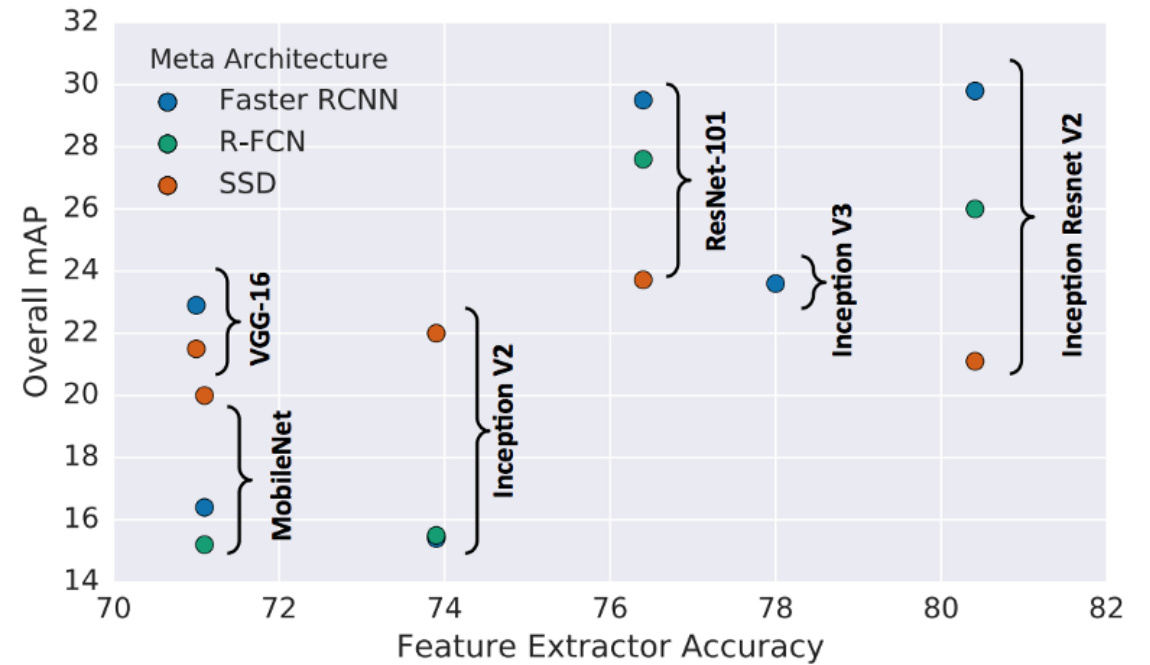
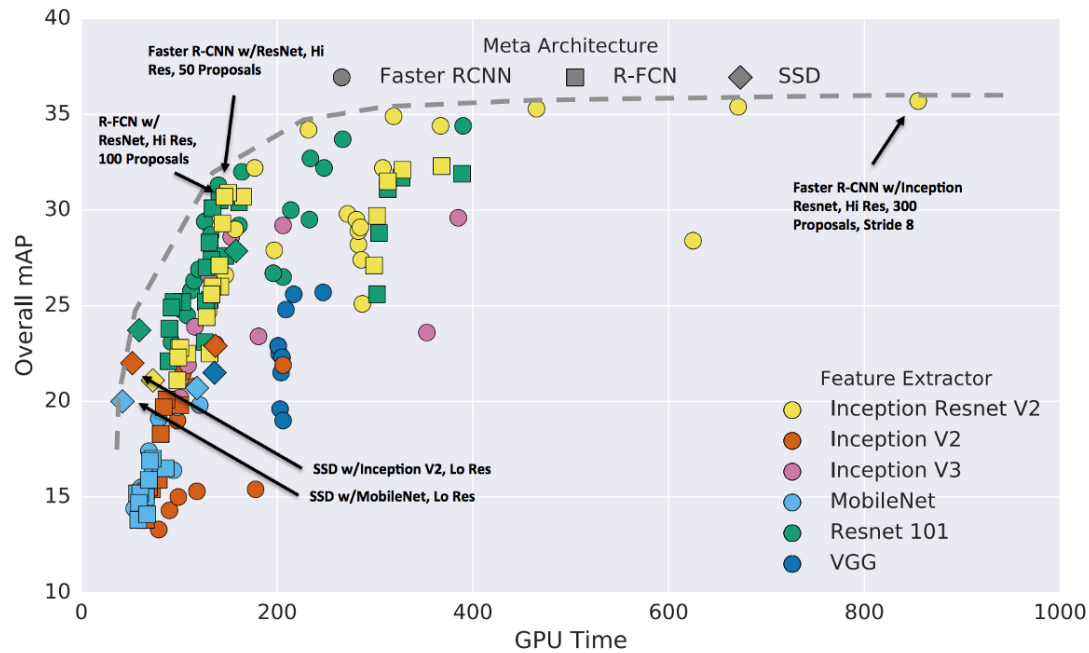
IDENTIFICAÇÃO E EXTRAÇÃO



IDENTIFICAÇÃO E EXTRAÇÃO



IDENTIFICAÇÃO E EXTRAÇÃO



Fonte: *Speed/accuracy trade-offs for modern convolutional object detectors.* HUANG, J et al.

IDENTIFICAÇÃO E EXTRAÇÃO

Hutchison High School Plagiarism

The Fairbanks North Star Borough School District and Hutchison High School regard plagiarism as a very serious offense. Plagiarism is a form of cheating, and cheating will not be tolerated.

Merriam-Webster Dictionary defines plagiarism as: "an act or instance of stealing and passing off (the ideas or words of another) as one's own; an act or instance of using (another's production) without crediting the source."

Academic honesty is the student's responsibility. If plagiarism is discovered in the final assignment, it will be returned, the parent / guardian will be contacted, and the student will receive disciplinary action and a zero on the assignment.

I understand that if the final copy of any assignment contains plagiarism, my parents and the administration will be contacted and I will receive disciplinary action.

I certify that the documents in my portfolio will be my own work. If I use someone else's work, I will be sure to cite my sources.

Student's printed name: Deidre Dayton

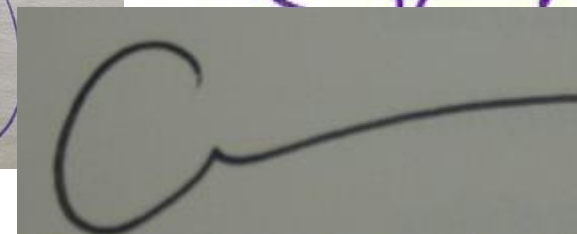
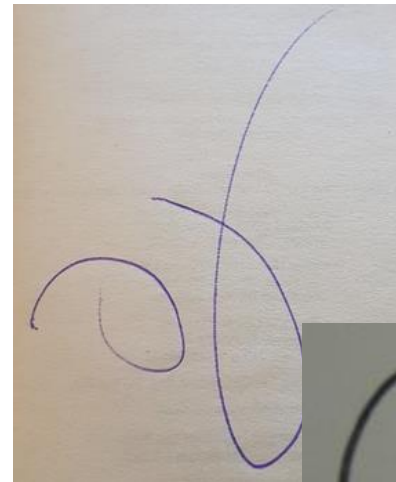
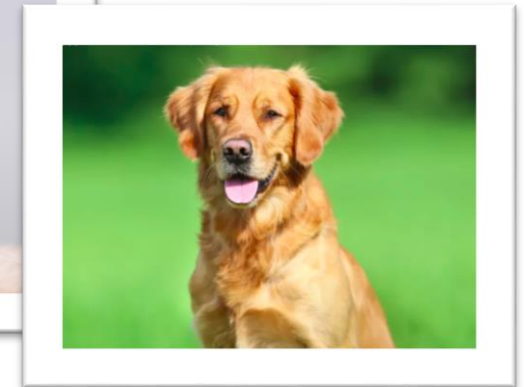
Student's signature: Deidre Dayton

Date: 1/9/12

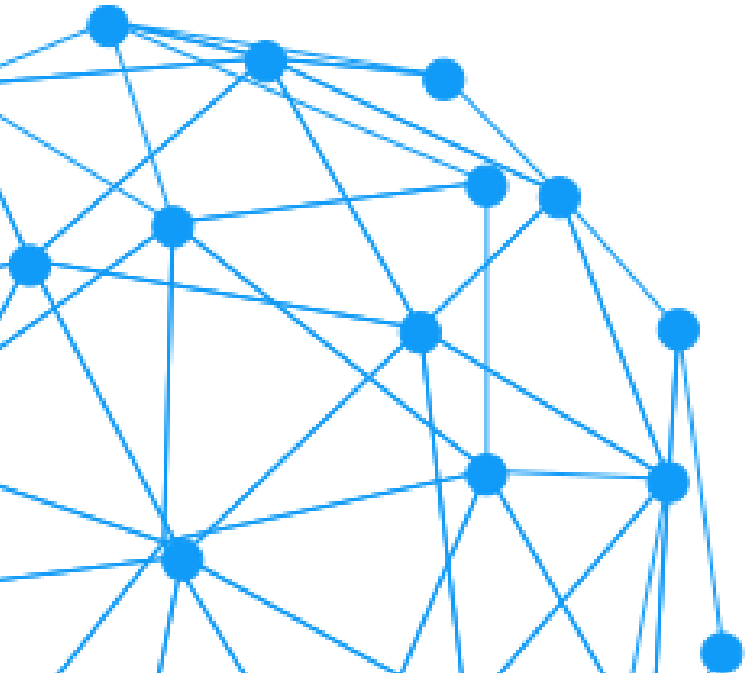
Parent / Guardian's printed name: Debbie Dayton

Parent / Guardian's signature: Debbie Dayton

Date: 1-10-12



COMO FAZEMOS



COMO FAZEMOS



11. These restrictions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by Executive Order No. 13526 (75 Fed. Reg. 707), or any successor thereto section 7211 of title 5, United States Code (governing disclosures to Congress); section 1034 of title 10, United States Code, as amended by the Military Whistleblower Protection Act (governing disclosure to Congress by members of the military); section 2302(b) (8) of title 5, United States Code, as amended by the Whistleblower Protection Act of 1989 (governing disclosures of illegality, waste, fraud, abuse or public health or safety threats); the Intelligence Identities Protection Act of 1982 (50 U.S.C. 421 et seq.) (governing disclosures that could expose confidential Government agents); sections 7(c) and 8H of the Inspector General Act of 1978 (5 U.S.C. App.) (relating to disclosures to an Inspector General; the inspectors general of the Intelligence Community; and Congress); section 1039(g)(3) of the National Security Act of 1947 (50 U.S.C. 403-39(g)(3)) (relating to disclosures to the Inspector General of the Intelligence Community); sections 17(f)(5) and 17(e)(3) of the Central Intelligence Agency Act of 1949 (50 U.S.C. 4036(e)(3) and 4036e(f)(3)) (relating to disclosures to the Inspector General of the Central Intelligence Agency and Congress); and the statutes which protect against disclosure that may compromise the national security, including sections 841, 793, 794, 795, 796, 798, 799, 802 and 1024 of title 18, United States Code, and section 4 (b) of the Subversive Activities Control Act of 1950 (50 U.S.C. section 783(b)). The definitions, requirements, obligations, rights, sanctions, and liabilities created by said Executive Order and listed statutes are incorporated into this agreement and are controlling.

12. I have read this Agreement carefully and my questions, if any, have been answered. I acknowledge that the briefing officer has made available to me the Executive Order and statutes referenced in this agreement and its implementing regulation (32 CFR Part 2001, section 2001.80(d)(2)) so that I may read them at this time, if I so choose.

*NOT APPLICABLE TO NON-GOVERNMENT PERSONNEL SIGNING THIS AGREEMENT	
SIGNATURE	DATE 10/01/2019
SOCIAL SECURITY NUMBER (See Note below)	
ORGANIZATION (IF CONTRACTOR, LICENSEE, GRANTEE OR AGENT, PROVIDE NAME, ADDRESS, AND, IF APPLICABLE, FEDERAL SUPPLY CODE NUMBER) (Type or print)	

WITNESS		ACCEPTANCE	
THE EXECUTION OF THIS AGREEMENT WAS WITNESSED BY THE UNDERSIGNED.		THE UNDERSIGNED ACCEPTED THIS AGREEMENT ON BEHALF OF THE UNITED STATES GOVERNMENT.	
SIGNATURE <i>James Roberto Began Jr</i>	DATE	SIGNATURE <i>[Signature]</i>	DATE
NAME AND ADDRESS (Type or print)		NAME AND ADDRESS (Type or print)	

SECURITY DEBRIEFING ACKNOWLEDGEMENT

I affirm that the provisions of the intelligence laws, other federal criminal laws and executive orders applicable to the safeguarding of classified information have been made available to me, that I have returned all classified information in my custody, that I will not communicate or transmit classified information to any unauthorized person or organization, that I will promptly report to the Federal Bureau of Investigation any attempt by an unauthorized person to solicit classified information, and that I (have) (have not) (took) (took not) (regardless of or apart) received a security debriefing.

SIGNATURE OF EMPLOYEE <i>Lucas L. Insulino</i>	DATE 10/01/19
NAME OF WITNESS (Type or print)	SIGNATURE OF WITNESS <i>[Signature]</i>

NOTICE: The Privacy Act, 5 U.S.C. 552a, requires that federal agencies inform individuals, at the time information is solicited from them, whether the disclosure is mandatory or voluntary, by what authority such information is solicited, and what uses will be made of the information. You are hereby advised that authority for soliciting your Social Security Number (SSN) is Public Law 104-194 (part 9). Your SSN will be used to identify you primarily when it is necessary to verify that you have access to the information indicated above or to determine that your access to the information indicated has been terminated. Furnishing your Social Security Number, as well as other data, is voluntary, but failure to do so may delay or prevent you being granted access to classified information.

STANDARD FORM 312 BACK (Rev. 7-97)E



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NAME OF WITNESS (Type or print)	SIGNATURE OF WITNESS <i>[Signature]</i>

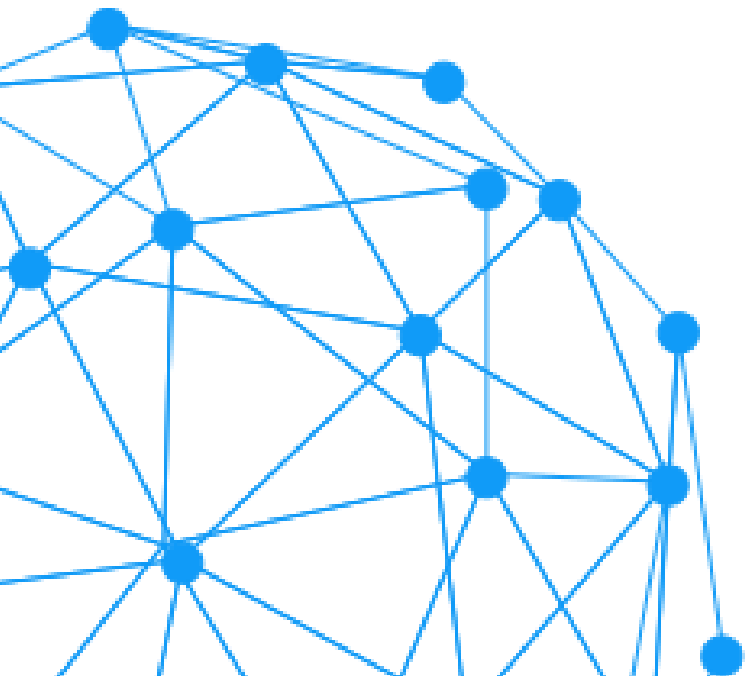
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DIFICULDADES ENCONTRADAS

- Qualidade da imagem
- Dataset
- Falsos positivos
- Proteção dos dados

COMPARAÇÃO DE ASSINATURAS

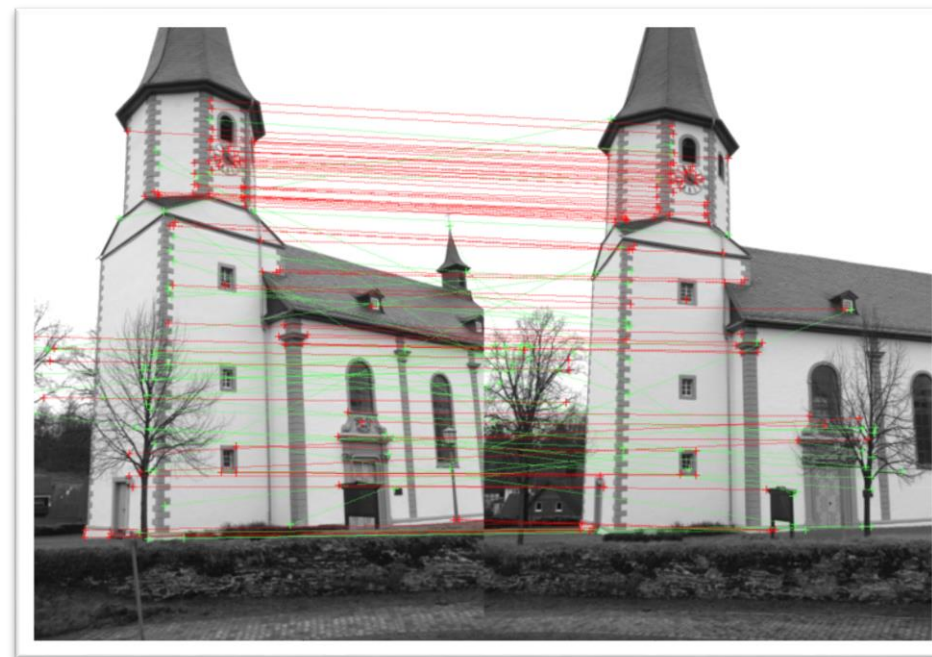
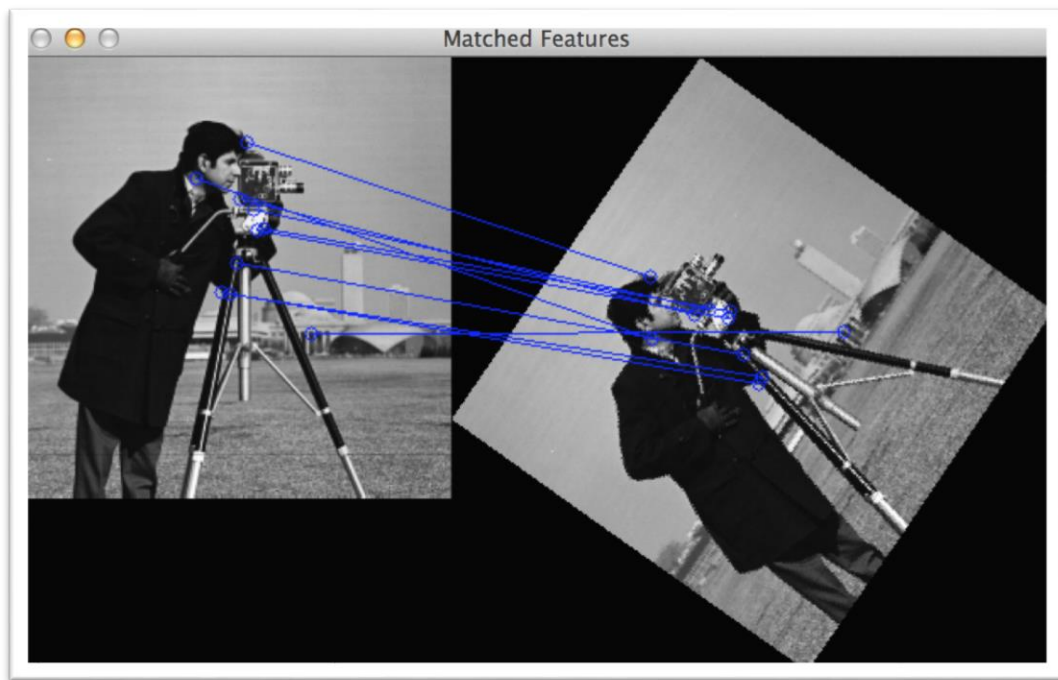


COMPARAÇÃO DE ASSINATURAS

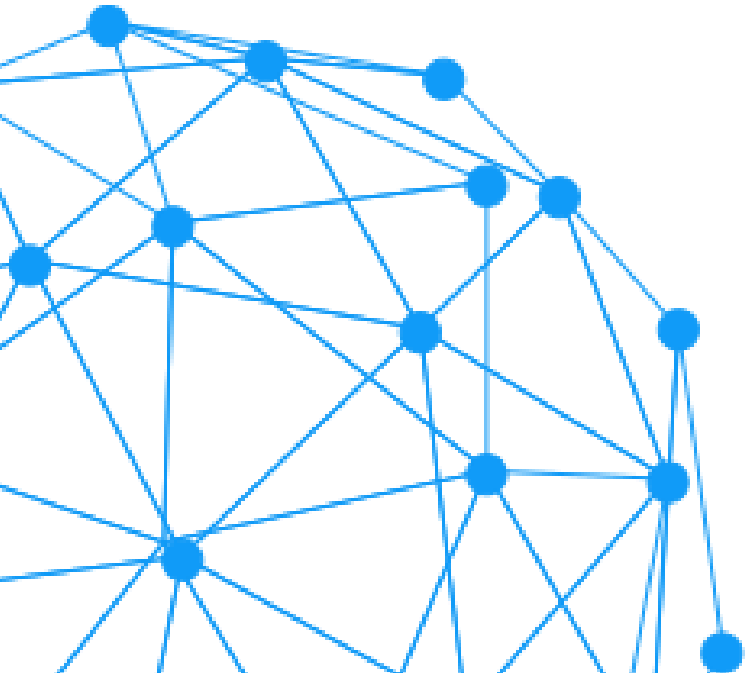


- Avaliar similaridades entre imagens
- Parametrização
- Abordagens analíticas e por IA

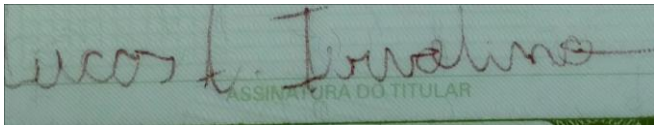
COMPARAÇÃO DE ASSINATURAS



COMO FAZEMOS



COMO FAZEMOS



NATURE
Lucas Roberto Berra Moura

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WITNESS	ACCEPTANCE
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SIGNATURE <u>Lucas Roberto Berra Moura</u> DATE _____	SIGNATURE <u>[Signature]</u> DATE _____
NAME AND ADDRESS (Type or print) _____	NAME AND ADDRESS (Type or print) _____

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SIGNATURE Lucas A. Tardino DATE 10/02/19

NAME OF WITNESS (Type or print) _____ SIGNATURE OF WITNESS [Signature]

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10/01/2019

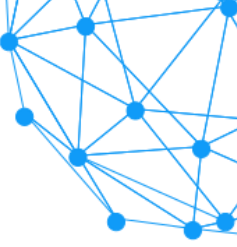
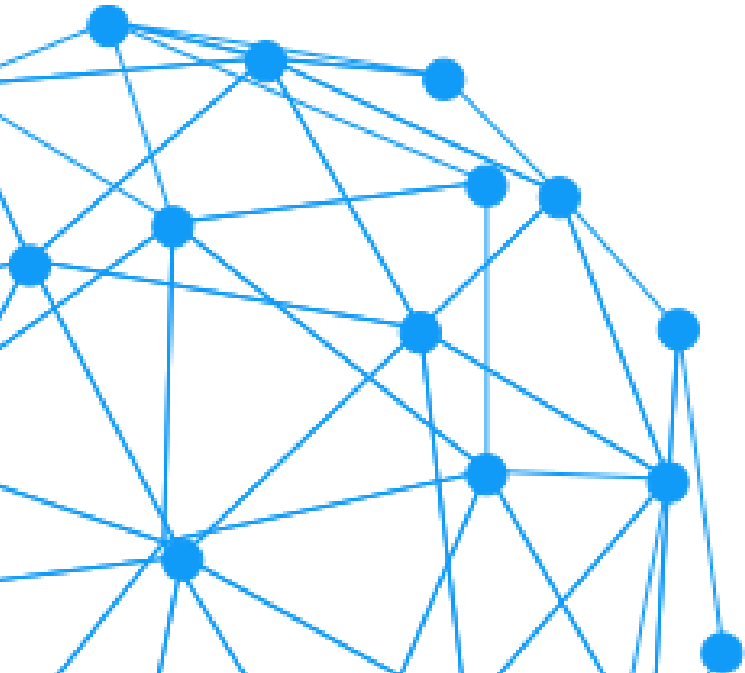
SIGNATURE
[Signature]

Lucas A. Tardino

O QUE APRENDEMOS

- Solução universal raramente é viável
- Combinação de diversos métodos
- IA apenas como agente de decisão

DEMONSTRAÇÃO



DIFICULDADES ENCONTRADAS

- Orientação da Imagem
- Ruído
- Sobreposição de informações

ONDE ESTAMOS

- Análise de integridade de documentos
- Análise de forja de assinaturas
- Classificação de documentos



OBRIGADO!

Lucas Arrigoni Iervolino • lucas.iervolino@gmail.com
Marcos Marques • marcosrlmarques@gmail.com