

# RESISTANT.AI

Adaptive Security for Fintech

May 2021

# Who we are

- 14 years of experience with application of artificial intelligence in network security and defence
- Successful startup - **Cognitive Security** (acquired by Cisco in 2013)
- Built **Cisco** Cognitive Threat Analytics product from 0 to **25 million users** in Fortune 1000 companies
- 7 PhDs in AI, 100s of patents and papers in AI and Security
- Transparent & Fair pricing



**CO|SE**  
COGNITIVE SECURITY

**CISCO**

 Index  
Ventures

**Cred0.**

**Seedcamp**

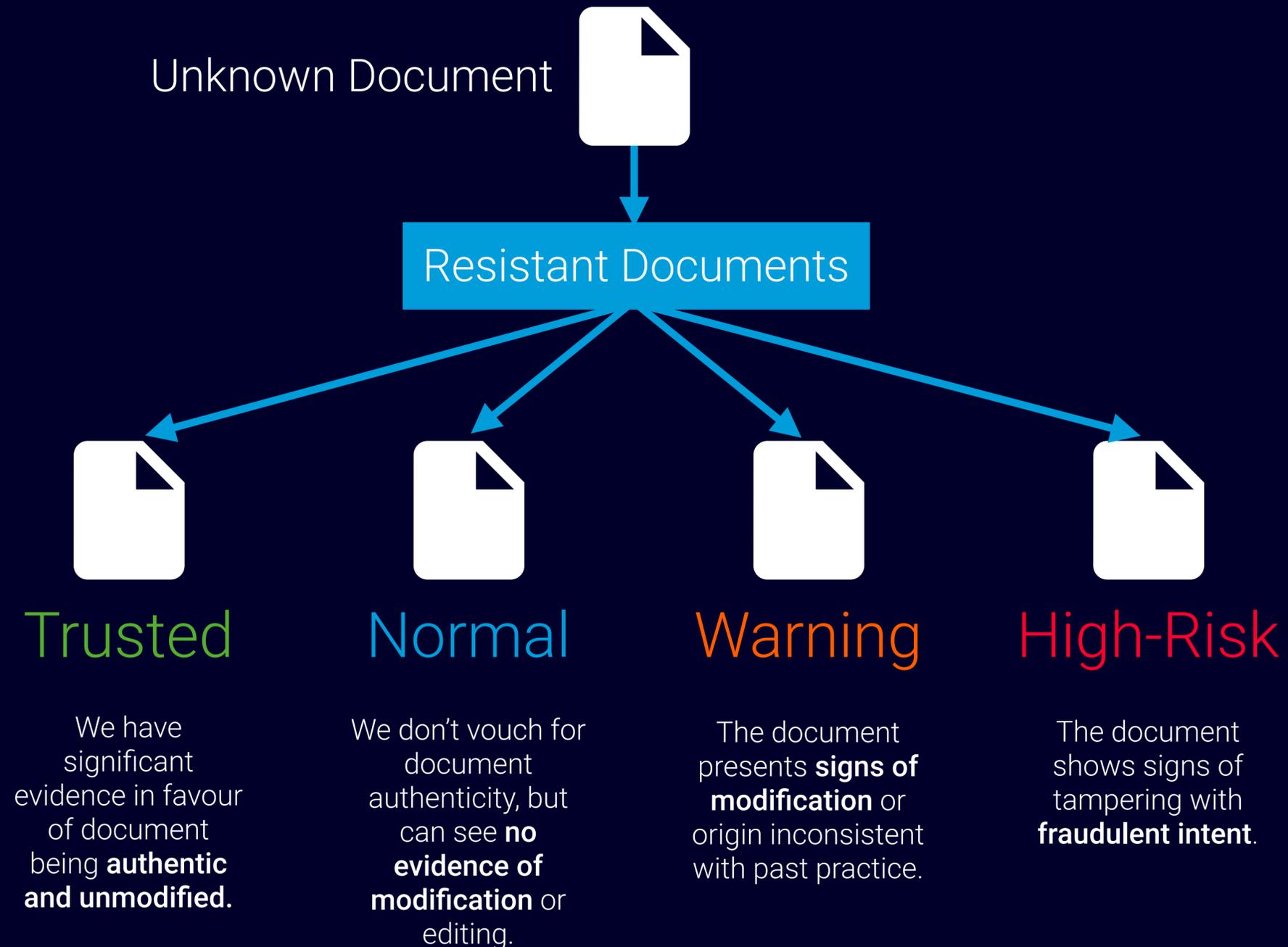
# Forgery Detection

- **Detect Manipulation and Forgery of PDF Files and Images**
  - Payslips
  - Bank Statements
  - POs & Invoices
  - KYC Documents

# Risk, Fraud & AML

- **False Positive Reduction**
- **Advanced Attack Detection**
- **Partner & Insider Fraud**
- for
- Fraud Detection
- Anti-Money Laundering
- Online & Consumer Lending

# Resistant Documents



# Assessment

Score: Warning

Manual Inspection Recommended

Detailed Indicators

Evidence of changes guides verification

Edits highlighted in the document

For easier inspection

Secondary Indicators Confirm Modification

False Alarms reduced by better reasoning

Full Story

Modification's traces confirm the attacker's approach

## BANK STATEMENT - INNOVATION JAM - ALTER...

**HIGH RISK**

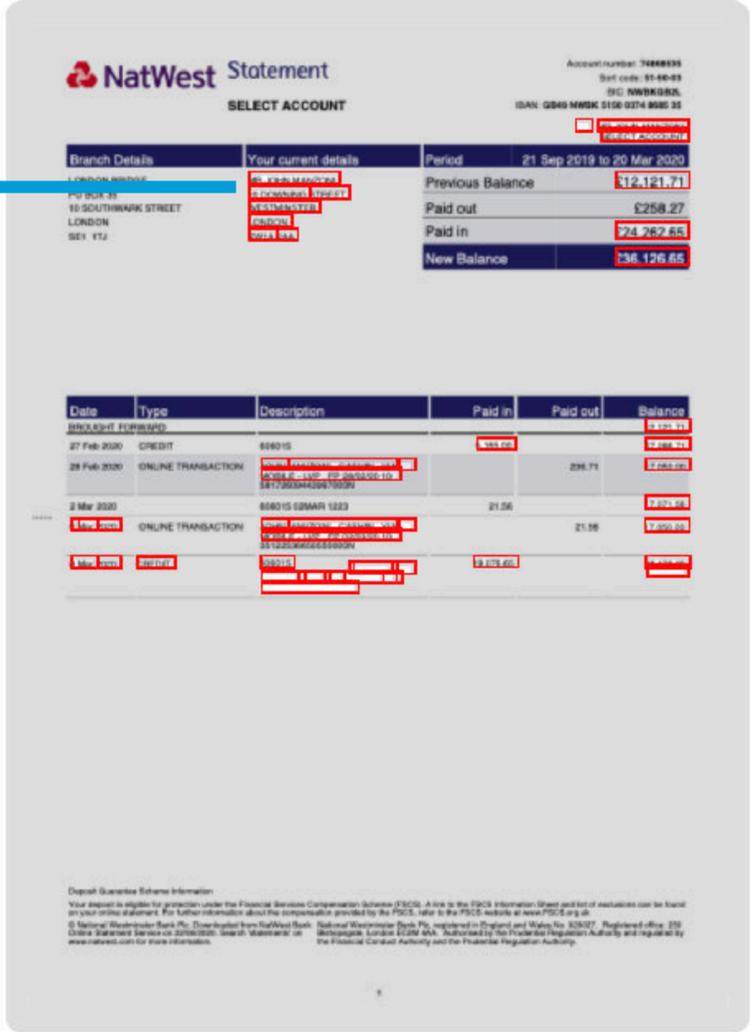
AUTHOR: NATIONAL WESTMINSTER BANK PLC  
MODIFICATION DATE: 6/24/2020, 12:59:13 PM

CREATION DATE: 6/22/2020, 5:13:39 PM

Actions

### RISK INDICATORS

- PDF was modified** [show in document](#)  
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| Date        | Type               | Description          | Paid in | Paid out | Balance |
|-------------|--------------------|----------------------|---------|----------|---------|
| 27 Feb 2020 | CREDIT             | 666015               | 100.00  |          | 100.00  |
| 28 Feb 2020 | ONLINE TRANSACTION | 666015 (28 FEB 2020) |         | 206.71   | 100.00  |
| 2 Mar 2020  | ONLINE TRANSACTION | 666015 (28 MAR 2020) | 21.56   |          | 100.00  |
|             | ONLINE TRANSACTION | 666015 (28 MAR 2020) |         | 21.56    | 100.00  |
|             | ONLINE TRANSACTION | 666015 (28 MAR 2020) | 100.00  |          | 100.00  |

# Reliable Content Extraction

- Highly accurate OCR targeting security-critical document fields
- Optimised for high precision, no low-confidence guesses
- Adversarial Robustness thanks to diversity of pre-processing algorithms

## Bank Statements

**VÝPIS Z ÚČTU** CSOB

Období: 1. 3. 2020 - 31. 3. 2020  
Účet: 272727279/0300  
Název účtu: Ladislav Ladařák

Strana: 1/3

Rok/V. výpisu: 2020/3  
BKČ: CEKOCZPP  
ISIN: CZ21 0000 0000 0000 2222 2222  
Typ účtu: ČSČB Podnikatelské spoření  
Měna: CZK  
Frekvence: měsíční  
Poč. úr. sazba: 0,00 % p. a.  
Kon. úr. sazba: 0,00 % p. a.

ladařák Ladislav  
100 00 Kč rezervováno

**Souhrnné informace**

|                           |    |                     |            |
|---------------------------|----|---------------------|------------|
| Počet kreditních položek: | 3  | Počáteční zůstatek: | 48 154,10  |
| Počet debetních položek:  | 31 | Konečný zůstatek:   | 920,21     |
|                           |    | Celkové příjmy:     | 89 283,75  |
|                           |    | Celkové výdaje:     | 136 023,64 |

**Přehled pohybů na účtu od 1. 3. 2020 do 31. 3. 2020**

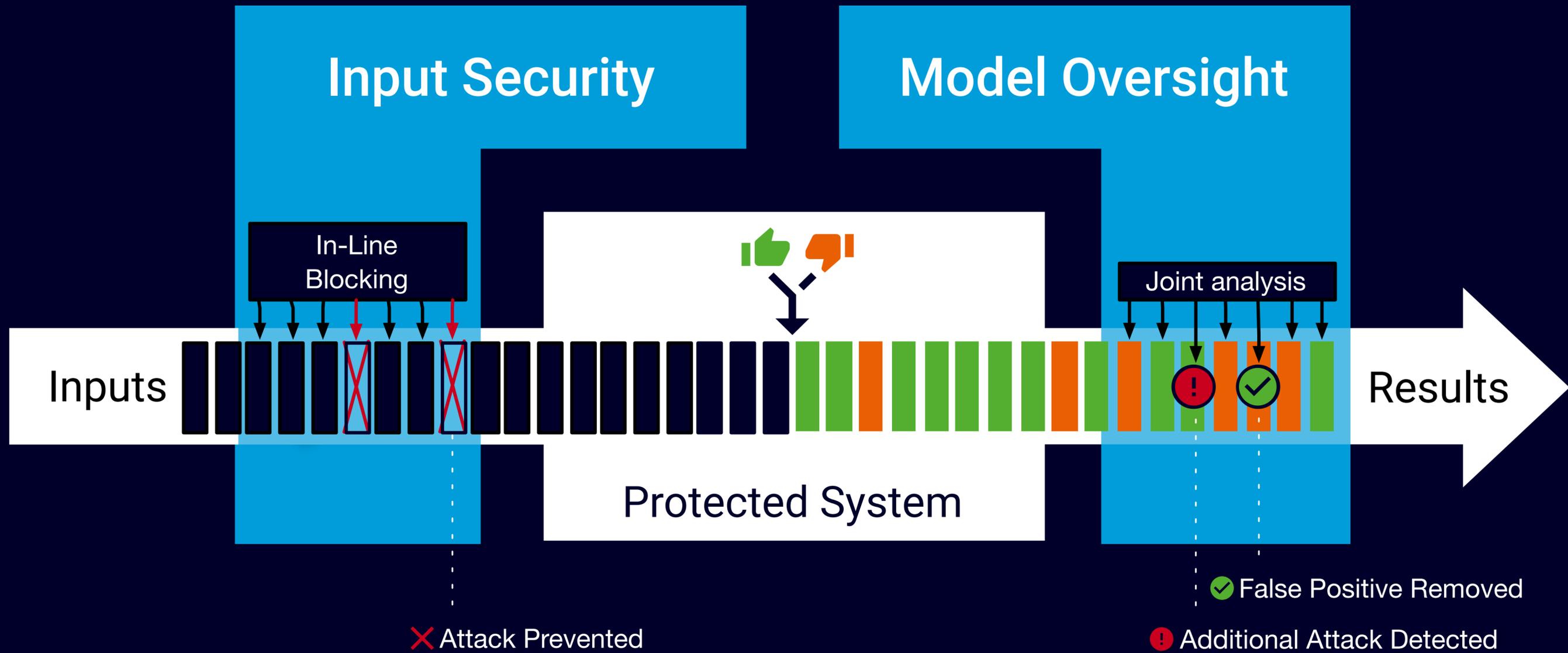
| Datum  | Operace / přílohy                        | Název protějšku   | KB            | IBAN            | Číslo      | Zůstatek   |           |
|--------|--|---|---------------|-----------------|------------|------------|-----------|
| 02.03. | Odběra účtu                              | LADLAV LADLAV   | 4854          |                 | -8 000,00  | 40 154,10  |           |
| 02.03. | Odběra účtu                              | 4137995   | 4857          |                 | -8 000,00  | 32 154,10  |           |
| 02.03. | Odběra účtu                              | CreditPortel, a.s.  | 4858          |                 | -5 000,00  | 27 154,10  |           |
| 02.03. | Odběra účtu                              | 11843   | 4860          |                 | -10 000,00 | 17 154,10  |           |
| 02.03. | Transakce platební kartou                | Místo: MOL - KURKOVCE - 851<br>Číslo: 299 88 CZK 28.02.2020   | 0000030       | 1178 2521212121 | 4861       | -206,88    | 16 947,22 |
| 02.03. | Transakce platební kartou                | Místo: MIBO MESTA MAYENH KALIF.<br>Číslo: 1006 CZK 28.02.2020 | 0000030       | 1178 2521212121 | 4863       | -1 000,00  | 15 947,22 |
| 02.03. | Transakce platební kartou                | Místo: CSOB 1540 ET MESTO U.<br>Číslo: 17000 CZK 01.03.2020   | 0000030       | 1178 2521212121 | 4865       | -17 000,00 | 14 947,22 |
| 03.03. | Odběra účtu                              | 6666  | 4868          |                 | -400,00    | 14 547,22  |           |
| 03.03. | Odběra účtu                              | 0000030   | 4869          |                 | -3 507,00  | 11 040,22  |           |
| 03.03. | Vklad hot. do vkladového bankovního účtu | CSOB 8021 LNER HRAD   | LADLAV LADLAV | 5803            | 4871       | 1 500,00   | 12 540,22 |
| 03.03. | Odběra účtu                              | 7000030   | 4873          |                 | -2 400,00  | 10 140,22  |           |

Československá obchodní banka, a. s., Pteřická 333/100, 110 17 Praha 6, IČO: 00001380  
zapsaná v obchodním rejstříku, vedeném Městským soudem v Praze, oddíl B, XXXVI, ulička 48, www.csob.cz, Informační 800 300 300

## ID Cards



# Resistant Transactions



We find attacks by reasoning about each transaction in the context of similar transactions.

# Detecting Account Takeovers

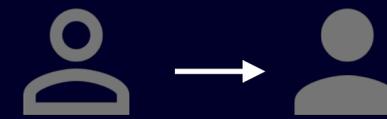
Features:



Previous Baskets



Time series



Identity Change



Device Change



# Generated Identities



Single Attacker

2019-05-22

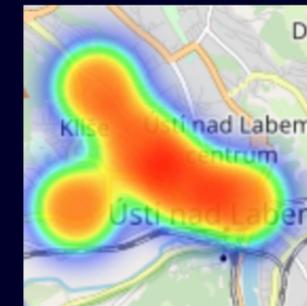
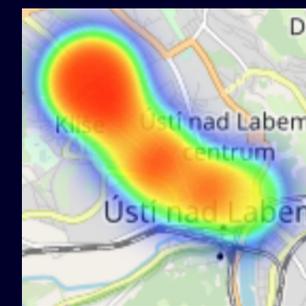
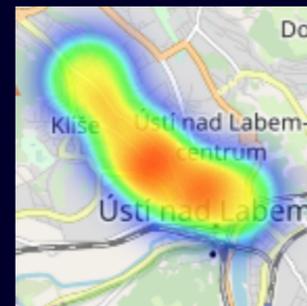
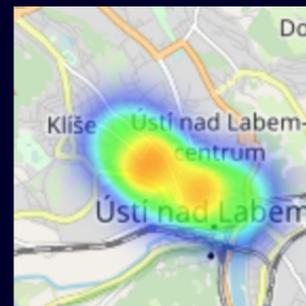
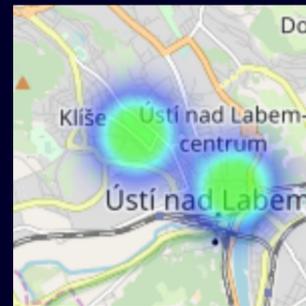
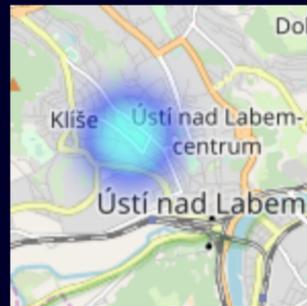
2019-05-23

2019-05-28

2019-05-29

2019-05-29

2019-05-30



iPhone  
Mobile/15E148

iPhone  
Mobile/15E148

iPhone  
Mobile/15E148

iPhone  
Mobile/15E148

iPhone  
Mobile/15E148

iPhone  
Mobile/15E148

Jane Doe

John Smith

Joe Black

Richard Roe

Jack Williams

James White

Cell Phone  
69 EUR

Gift Voucher  
80 EUR

Cell Phone  
69 EUR

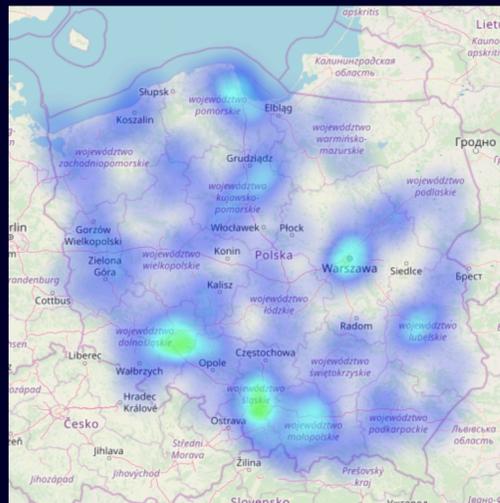
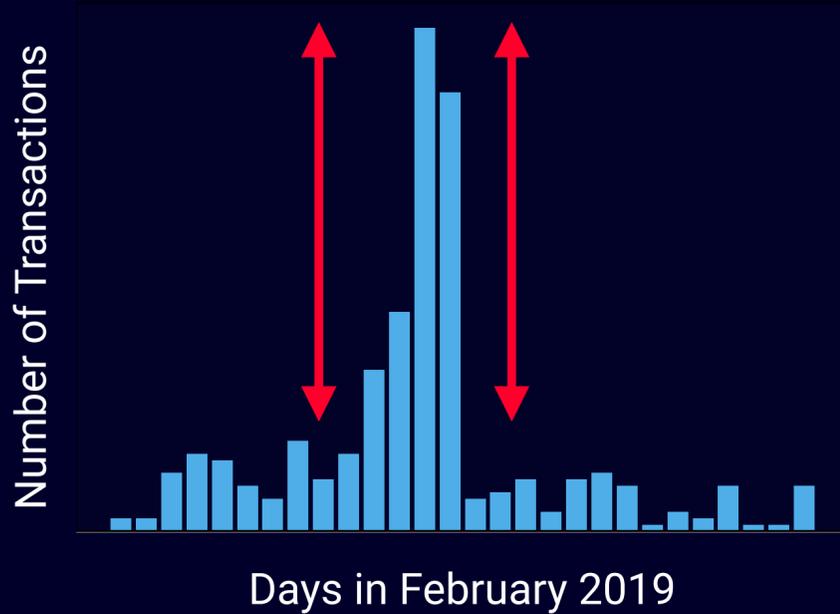
Gift Voucher  
80 EUR

Gift Voucher  
80 EUR

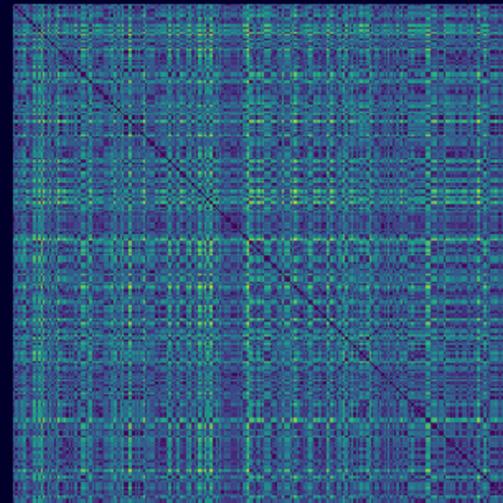
Gift Voucher  
80 EUR

# Reduction of False Positives

## Buying Flowers for Valentine's Day



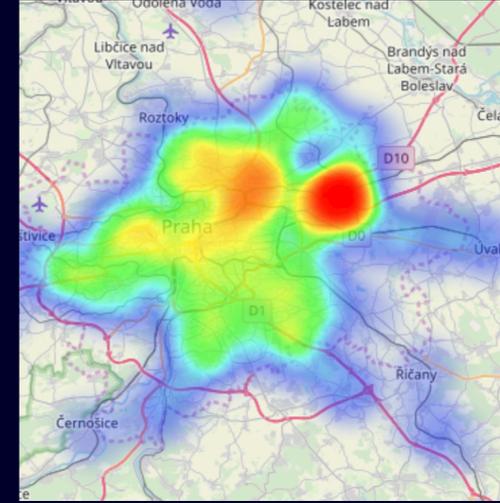
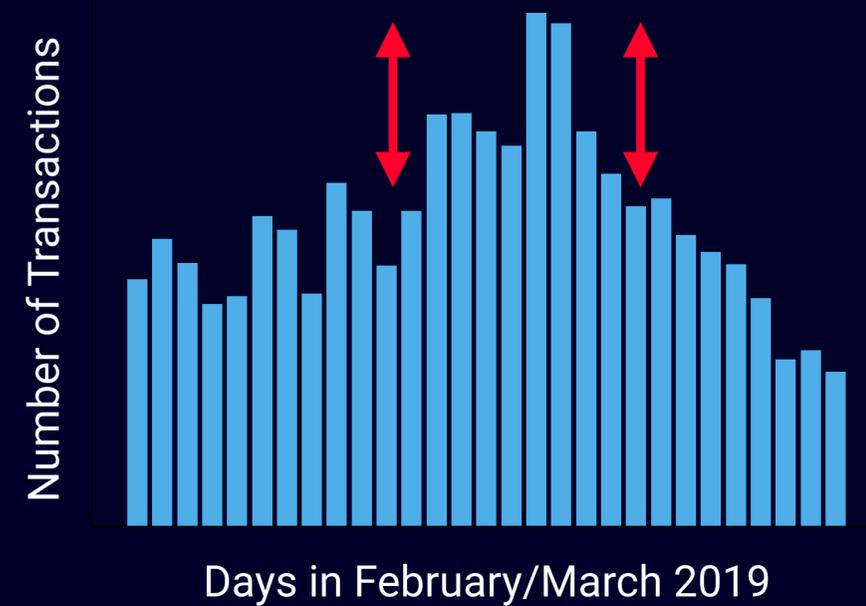
Widespread Locations



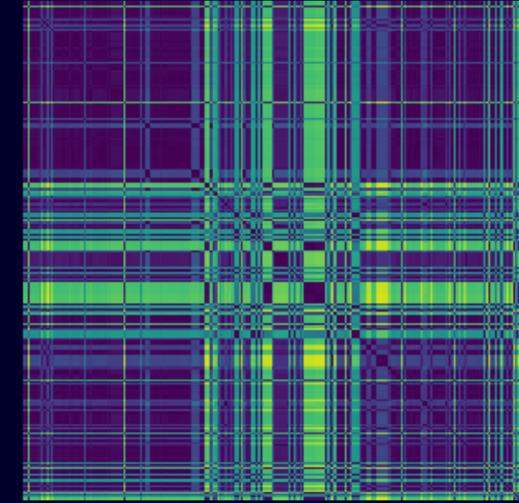
Weak Context Similarities

**LEGITIMATE**

## Online Food Store Fraud



Isolated Locations



Large Context Similarities

**FRAUD**

# Customer Outcome

**50%** of fraud incidents auto-prevented before approval

**15%** of previously “non-fraud defaults” identified as fraud

**85%** alert volume reduction for fraud team

+ Better robustness against new attacks

+ Improved risk scoring thanks to cleaner data

# RESISTANT.AI

Prague & Brussels

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