

- Accuracy 準確度 >97%
- Installed locally in client side **without** internet access 在客戶端本地安裝
- Available for lower resolution images 適用於較低解析度影像

ASTRI Form Recognition System

Start

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香港身份證: M2856741
樓: 6
座: 18
大廈/屋邨: 威靈花園
門牌號碼: 彩虹道

業務帳目: \$ 466700

- A generic approach to extract entities from a document with customizable rule sets related to **spatial & contextual** info. 一種從文件中提取實體的通用方法，具有與空間和上下文資訊相關的可自訂規則集。

BANK

ABC COMPANY LIMITED
99FLR BLOCK 123 HAPPY INDUSTRIAL
11 NONEXISTENT ROAD SOME DISTRICT
CHINA

Field	Value
AccountNo	123-456-789
Balance	5,577.88
Foreign_Currency	555,412.12
Overdraft	0.00
Net_Position	557,990.00
Client_Info	ABC COMPANY LIMITED 99FLR BLOCK 123 HAPPY INDUSTRIAL 11 NONEXISTENT ROAD SOME DISTRICT CHINA

Handwritten Form Recognition

AI OCR on Bank Statements

DocType

Main View

File Home Share View

Pin to Quick access Copy Paste Move to Delete New folder Properties Select

Clipboard

docx doc

Search doc

Name Status Date modified Type

Employment_Letter_4.pdf.png 2/24/2022 10:31 AM PNG File

hangseng_statement.pdf 6/29/2022 9:59 AM Adobe Acrobat

land.html 4/7/2022 3:37 PM Chrome HTML

3 items

Started

2. Select document type.

3. Click upload.

4. After uploading, click done

Workpace Preview: Click following button at right side.

Document Preview: Displays single page result to inspect and update values.

Result Viewer: Processed result of full document.

Doc Select Data

Upload Process This Page Export Result

Min Confidence Level

Show All Show Selected

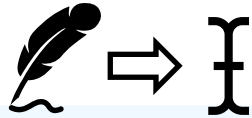
Value Table

ASTRI
ASTRI-TAIT-MSA

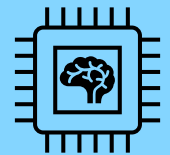
Core Competence – Machine Learning & Automation

Computer Vision & Object & Text Recognition

- Video Analytics, 2D/3D rigid information extraction, **object detection and classification**, such as QR code detection and decoding; distortion recovery
- Facial detection, identification, verification, generation, emotion detection; Non-rigid body registration
- Handwritten character recognition, such as Traditional and Simplified Chinese characters, cursive English handwriting.

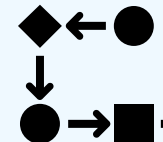


Machine Learning



Con-textual Understanding for Decision

- Intelligent Text Correction
- Hong Kong Address Cleansing and Correction
- Customizable **Rule base System for Decision making** on context information
- Robotic Process Automation powered by **Large Vision Language Models (LVLM)**.



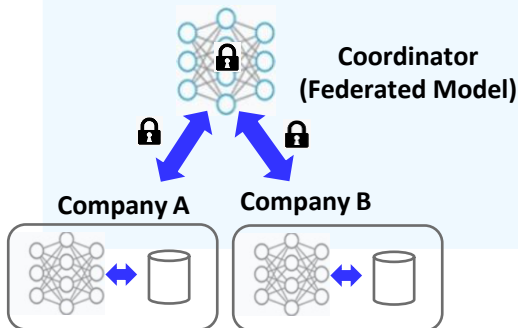
Decision

Txet Croriceton

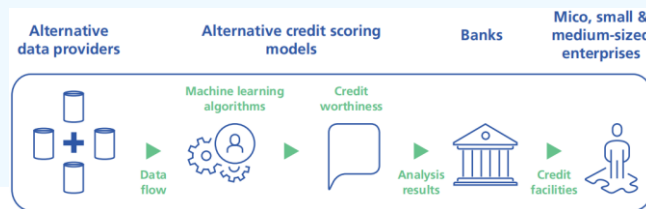


Trusted technologies for machine learning (Fintech)

- Machine learning for alternative credit scoring
- Privacy preserving technologies: **federated learning**, homomorphic encryption & differential privacy



Privacy preservation



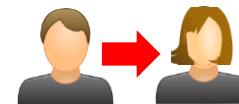
Alternative credit scoring

Trusted technologies for multimedia analytics (Fintech & Smart City)

- AI-based recognition algorithms: Recognition of face, voice, handwriting and object (product images & product logos)
- Adversarial examples of facial recognition algorithms
- **AI Fraud Detection: Detect Generative AI, fake documents**



Multi-factor authentication



Attack detection on Deep Learning Algo



Detect Generative AI



Evaluation of KOL

ASTRI

Some Deployed Solutions for Smart City

Handwritten Form Processing

- Recognize handwritten Chinese characters
- Process multi-forms on one single system
- Accuracy for handwritten Chinese on text lines is 87%.
- Cover > 8,000 characters

A sample of a handwritten form, likely a tax or insurance document, with various fields and checkboxes. The form is titled 'SAMPLE' and includes sections for 'PART 1: PERSONAL PARTICULARS' and 'PART 2: INCOME TAX'. It contains handwritten text in Chinese and English, and a large red 'SAMPLE' watermark is overlaid on the form.

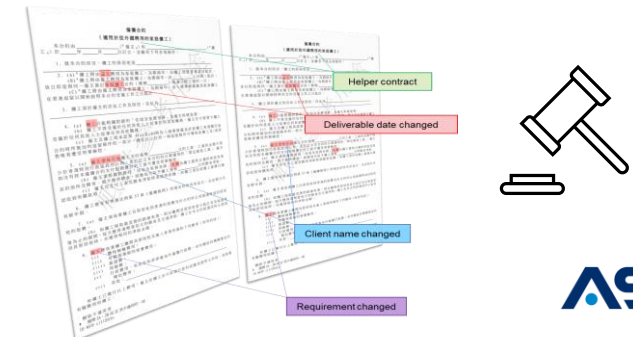
Fraud Detection for Prevention

- Travelling lost item fraud detection
 - ✓ Image-based comparison algorithm to compare the similarity between images
 - ✓ Measure the risk on fraud insurance claim from the comparison of client's submitted images to database and Google image
- Vehicle Damage Claim
 - ✓ Vehicle detection from photos
 - ✓ Identify damage parts of a vehicle
 - ✓ Compare zoom-in and out images
 - ✓ Measure the consistence between texts and images



Legal Document Processing

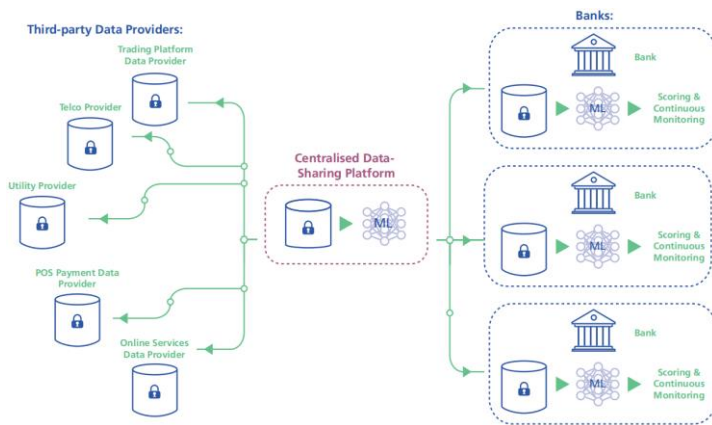
- Text-based Comparison
 - ✓ Words by words to cross multiple pages to compare two documents
 - ✓ Controllable ignoring irrelevant information to reduce false positive
 - Line-break; page-break; section-break; index numbering;
- Context-based Comparison
 - ✓ Comparison based on contexts instead of characters
 - ✓ Personal data retrieval
- Template-based Comparison
 - ✓ Compare income documents to predefined Template which contains labelled "Terms"
 - ✓ Acceptable "Terms" can be predefined, users can compare income documents if they satisfy the "Terms" or not.



Some Deployed Solutions for Financial Institutions

Privacy-preserving technologies

- Federated learning on fintech data
 - Alternative scoring
 - Federated learning for AML/CFT
- Federated learning on medical data
 - Insurtech models
 - Contact tracing

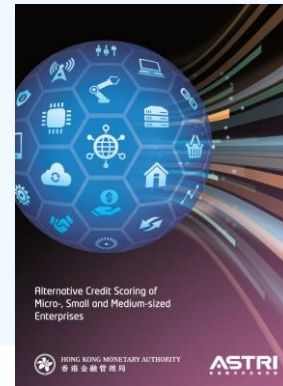


Alternative Credit Scoring of MSMEs

- Alternative approach to do credit scoring for micro, small & medium enterprises
- Using machine learning on alternative data
- Proposed models for alternative credit scoring
- A blue-print for banks in HK for adoption



HONG KONG MONETARY AUTHORITY
香港金融管理局



AI Fraud Detection

- Detect AI-generated Images (e.g., Mid-journey, Stable Diffusion)
- Manipulated Inspection (e.g., Photoshop)
- Relative Layout Scale Comparison
 - Relative spatial information between fields
- Graphical/Attribute Information
 - Font types/sizes verification
- Cross-field Content Validation
 - Rule-based checking inconsistency

