



# ML and FinTech

Huei-Wen Teng

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<https://hackmd.io/@hwteng/HyKOPoA6d>

# Outline

1. About ME
2. Syllabus
3. FinTech
4. Stat, ML, and AI
5. More



# Education



Huei-Wen Teng [Verify now](#)

Professor  
Hsinchu City, Taiwan, Taiwan · [Contact info](#)  
[368 connections](#)

National Yang Ming Chiao Tung University

Penn State University

## ← Education

 Penn State University  
Doctor of Philosophy (Ph.D.), Statistics  
2005 - 2010

Skills: 資料分析

 National Taiwan University  
MBA, Finance  
2002 - 2004

Skills: 資料分析

 Johannes Kepler Universität Linz  
Exchange Student  
Aug 2000 - Jan 2001

 National Taiwan University  
Bachelor of Science (BS), Mathematics  
1997 - 2001



# Experience



## National Central University

6 yrs 6 mos

- **Associate Professor**

Aug 2016 - Jan 2017 · 6 mos

- **Assistant Professor**

Aug 2010 - Jul 2016 · 6 yrs

Research, teaching.

## Experience



### National Yang Ming Chiao Tung University

3 yrs 8 mos

Hsinchu City, Taiwan, Taiwan · On-site

- **Professor**

Full-time

Aug 2024 - Present · 2 mos

- ◆ **Quantitative Finance and Monte Carlo Simulation**

- **Associate Professor**

Feb 2021 - Jul 2024 · 3 yrs 6 mos

- ◆ **Quantitative Finance and Monte Carlo Simulation**



### Experienced Researcher

IDA Institute Digital Assets · Part-time

Apr 2024 - Present · 6 mos

Bucharest, Romania · On-site



### Associate Professor

National Chiao Tung University

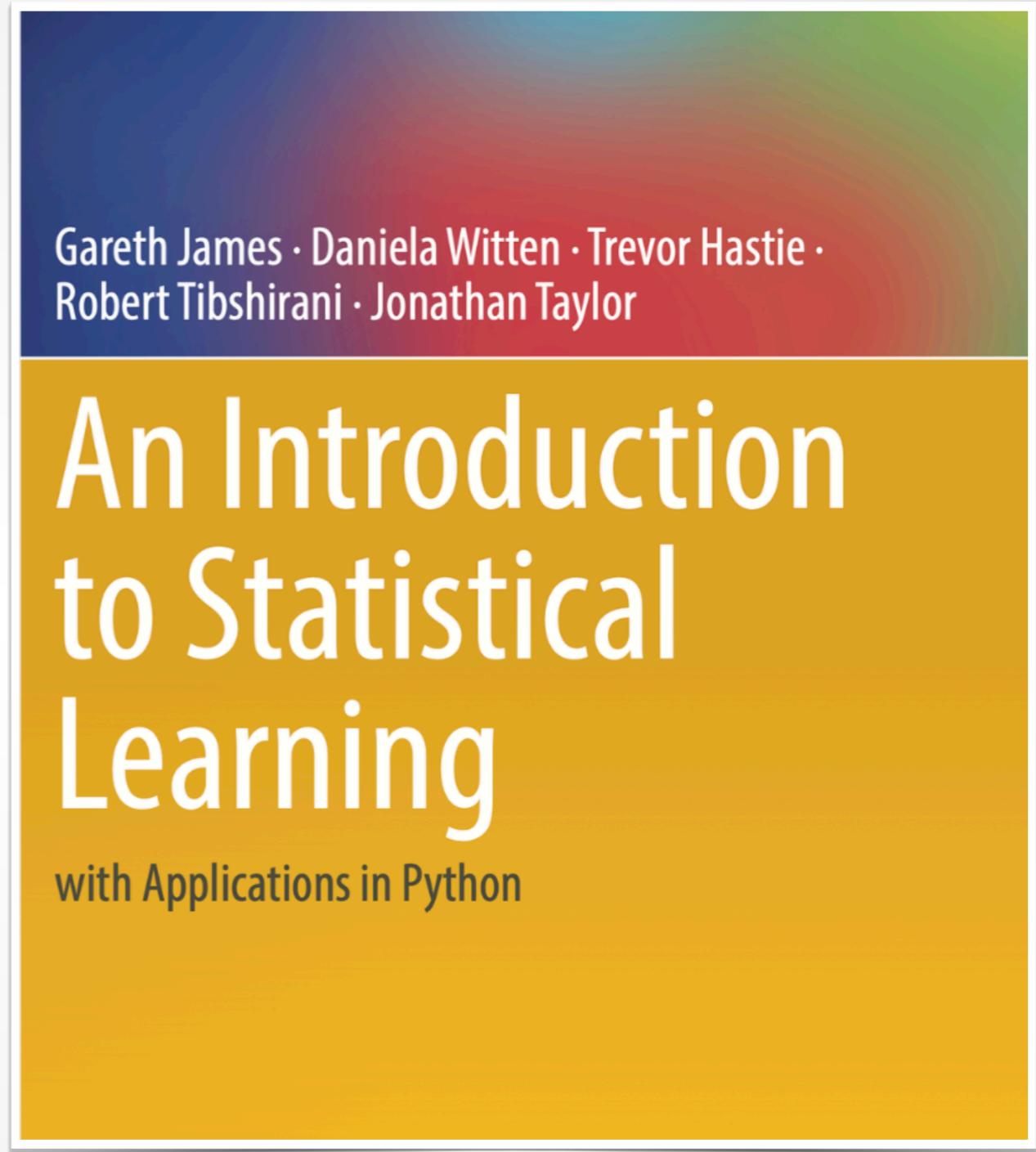
Feb 2017 - Jan 2021 · 4 yrs

台灣 Taiwan 新竹市 · On-site



# Introduction

- MUST: Laptop & internet:  
In-class exercises in a group
- E3: scores and  
announcement
- TA: 陳諾恆 (Jason Chan)  
Email:  
m9790755@gmail.com



<https://www.statlearning.com/>



# ISL

The First Edition topics include:

- Sparse methods for classification and regression
- Decision trees
- Boosting
- Support vector machines
- Clustering

The Second Edition adds:

- Deep learning
- Survival analysis
- Multiple testing
- Naive Bayes and generalized linear models
- Bayesian additive regression trees
- Matrix completion

[Home](#) [Resources](#) [Errata](#) [Reviews](#) [Forum](#)

Online Course

First Edition

Second Edition

<https://www.statlearning.com/resources-second-edition>

## + A Note About the Chapter 10 Lab

## + .R Files

## + Rmarkdown Files

## + Jupyter Notebook Files

## + Slides

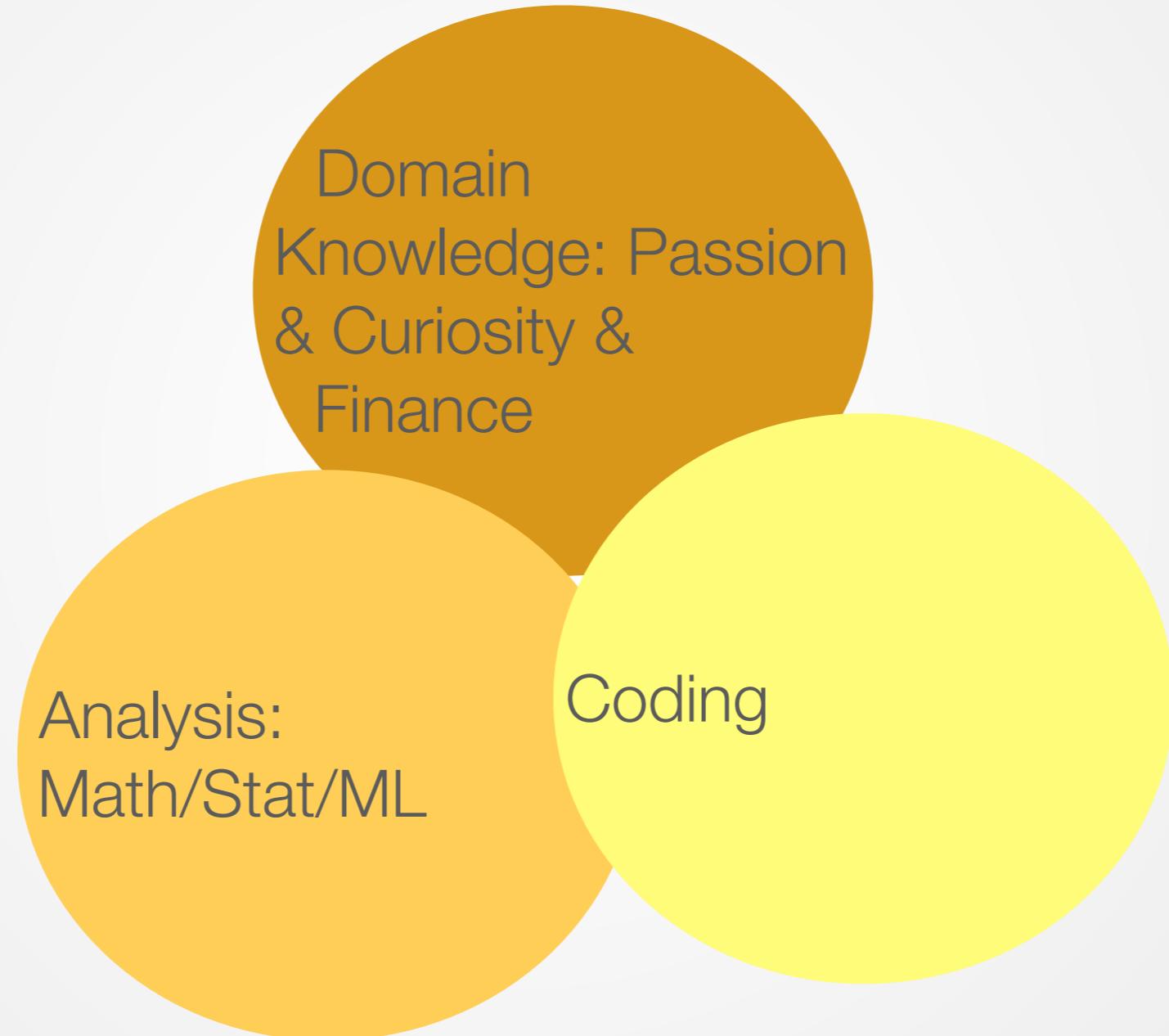
## + Data Sets

## + Figures



# Presentations, presentations, presentations!

- **Slides**
- **Manuscript**
- **Vedios**



# Grading policy

| Index        | Items          | %           | Details   |
|--------------|----------------|-------------|---|
| 1            | Infrastructure | 4%          | Created accounts (1) gitHUB and join our gitHUB, (2) linkedIn and connect me, (3) Quantinars & up load a snapshot, (4) overleaf<br>Google Forms to collect info |
| 2            | Participation  | 20%         | * (1) Attendance, (2) feedback, (3) bugs from QQ report, (4) In-class excercise<br>E3 for in-class exercise<br>Google Forms to collect feedback                 |
| 3            | Homework       | 16%         | * (1) Upload HW in GitHub and present it in-class.  |
| 4            | Project        | 30%         | * Final Presentation: motivations, analysis and conclusion (25%)  |
| 5            | Exam           | 30%         | * In class and with one A4 double-sided cheating sheet, Dec 2, 2024   |
| <b>Total</b> |                | <b>100%</b> |   |



# Project

- README.md:
  - title, abstract,
  - links to overleaf (shared with me) and YouTube (emailed your vedios to the TA).
- Slides
- “Code”: Python in Jupyter Notebook
- “Data”: datasets or links to data (in README.md).

Jason will provide an example!



## Potentials of your projects

- Thesis or dissertation
- Journals



# Tools

- Markdown使用說明
  - <https://hackmd.io/8nPfj8X7Rc2UhkhfjYAbkw?both>
- 哪裡可以找到資料?
  - <https://hackmd.io/LfakJmiPQCauy48zAx71xw>
- 高速運算: 國網中心
  - <https://hackmd.io/HXY75BRpRzimkWdCIAbuLw?both>



# Institute of Digital Assets

<https://ida.ase.ro/>

The screenshot shows the homepage of the Institute of Digital Assets (IDA). At the top left is the IDA logo with the text "Institute Digital Assets". To the right is a search bar with the placeholder "Search...". Below the header is a dark blue navigation bar with four links: "WHAT IS IDA?", "OUR TEAM", "Q2 ECOSYSTEM", and "PRODUCTS". The main content area has a blue gradient background. On the left, the text "Institute For Digital Assets" is displayed in large white font. In the center, there is a graphic of interconnected hexagons in shades of blue, representing a digital ecosystem. On the right, there is descriptive text about the institution's mission: "Global research and educational institution dedicated to advancing the understanding, adoption, and integration of digital assets into the mainstream economy and society." At the bottom left is a red button with the text "IDA Ecosystem »". A red arrow points from the word "picture" at the bottom right towards the central graphic.

**Institute  
For Digital Assets**

Global research and educational institution dedicated to advancing the understanding, adoption, and integration of digital assets into the mainstream economy and society.

**IDA Ecosystem »**

picture



# Quantinar <https://www.quantinar.com/>

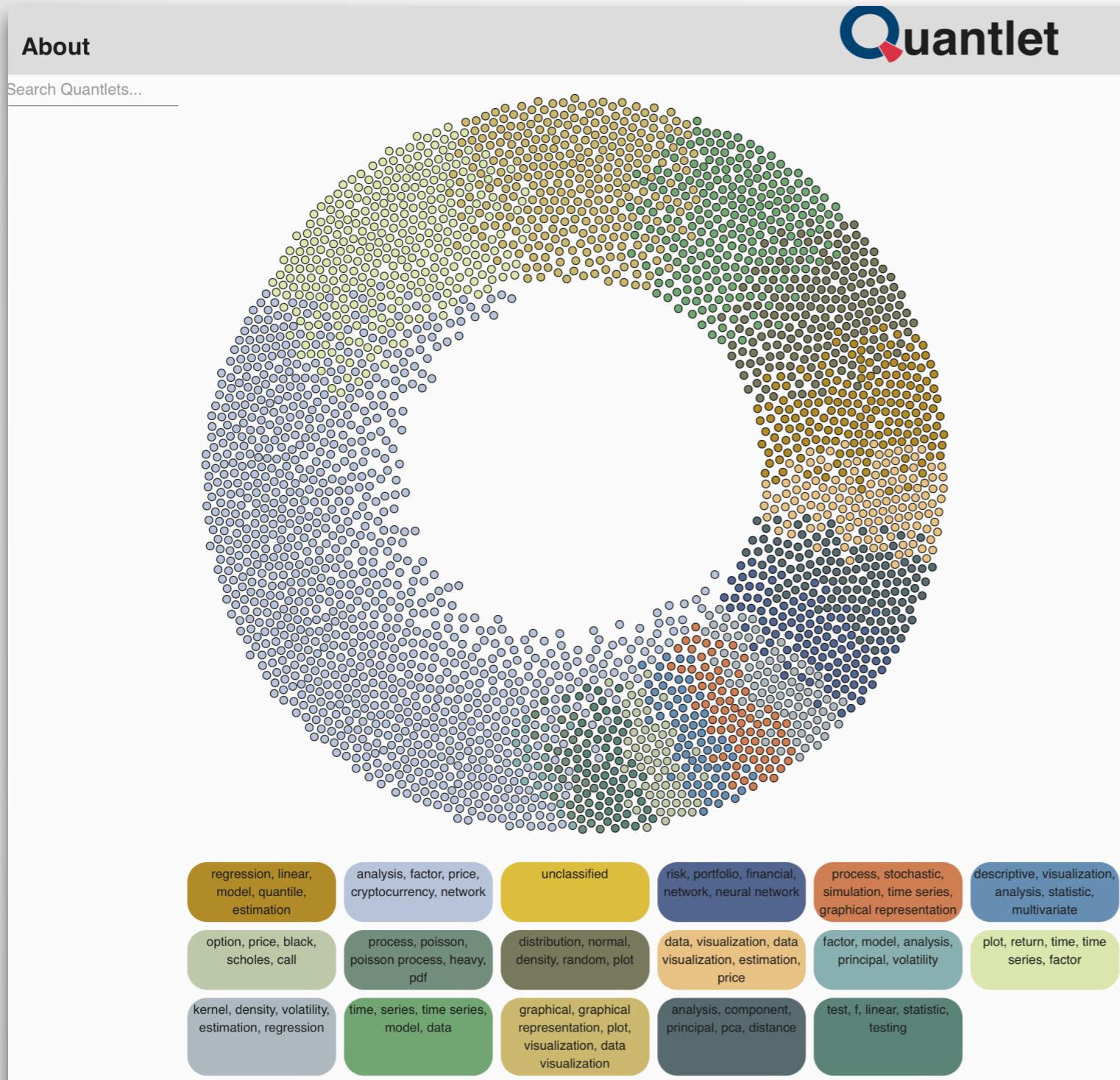
The screenshot shows the Quantinar homepage with a dark blue header featuring navigation links for Machine Learning, Digital Economy, Data Science, Cryptocurrency, Fintech, and Blockchain. Below the header is a large black banner with the Quantinar logo and the text: "A peer-to-peer knowledge platform for top quality research" and "Developed by top quality researchers". The main content area is divided into three sections: Data, Science, and Education. The Data section offers access to rich data resources. The Science section advances quantitative analysis skills. The Education section provides education from top teachers. A "FEATURED CATEGORIES" section lists Machine Learning, Digital Economy, Data Science, Cryptocurrency, Fintech, Blockchain, Explainable AI, and Maths & Stats, each accompanied by a small thumbnail image.



- Slides, vedios



# Quantlet <https://quantlet.com/>



## Digital Art Index

DAI is an Index that uses Hedonic regression models and discounting characteristics of NFT artworks in order to show the fundamental market movements of the NFT art market.



## Products

### Financial Risk Meter

FRM identifies systemic risk levels in different channels (America, Europe, Asia, Euro rates, Cryptos, Itraxx SenFin, SP500, and emerging markets). Its network topology indicates CoStress and systemically provides insights into pre-critical risks.





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