

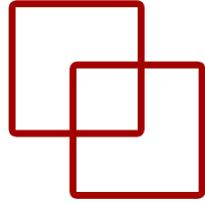
# Presentation



**Dr. Manuel Castillo-Cara**  
[www.manuelcastillo.eu](http://www.manuelcastillo.eu)

Departamento de Inteligencia Artificial  
Escuela Técnica Superior de Ingeniería Informática  
Universidad Nacional de Educación a Distancia (UNED)

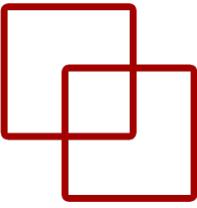
# Preliminar



- Improving Deep Learning by Exploiting Synthetic Images © 2024 by Manuel Castillo-Cara is licensed under Attribution-NonCommercial 4.0 International



# Índice

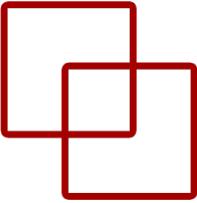


- Curriculum Vitae
- Lines of research
- Indoor Localization
- Synthetic images
- Hybrid Neural Networks
- Seminar Modules
- Resources

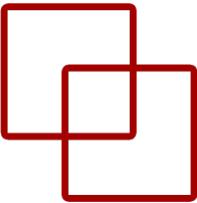


# Curriculum Vitae

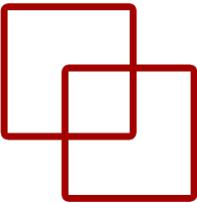
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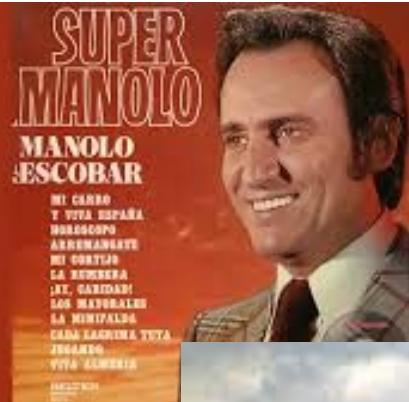
# Almería



# Almería

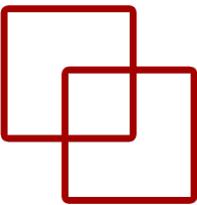


- 01. Pájaro Ciego
- 02. Madrecita M<sup>a</sup> Del Carmen
- 03. Que Viva España
- 04. Tu Nombre Anita
- 05. Mi Canción Es Para Ti
- 06. Mi Pequeña Flor
- 07. Que Bonita Es Mi Niña
- 08. Niña De Los Ojos Verdes
- 09. Mi Carru
- 10. Mientras Tú Me Vivirás
- 11. Ni Se Compra Ni Se Vende
- 12. Escribiente
- 13. Los Mayarales
- 14. Ay, Mi Sombra
- 15. Solo Te Pido
- 16. El Positivo No Se Equivoca
- 17. La Morena De Mi Copia
- 18. En Tierra Exótica
- 19. Valencia
- 20. Mi Canción Es Para Ti



Imágenes tomadas de diferentes sitios de internet para una finalidad interna y no pública

# Almería



01. Pájaro Ciego  
02. Madrecita M<sup>a</sup> Del Carmen  
03. Que Viva España  
04. Tu Nombre Aníta  
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17. La Morena De Mi Copia  
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19. Valencia  
20. Mi Canción Es Para Ti



Nicolás Salmerón fotografiado por Compañy,  
publicado en la revista *Nuevo Mundo*  
el 24 de septiembre de 1908.



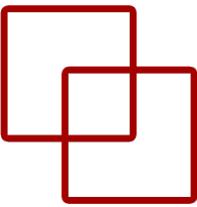
Presidente del Poder Ejecutivo de la  
República Española

18 de julio de 1873-7 de septiembre de 1873

Predecesor Francisco Pi y Margall

Sucesor Emilio Castelar

# Almería



Emilio Castelar Salmerón fotografiado por Compañy, publicado en la revista *Nuevo Mundo* el 24 de septiembre de 1908.



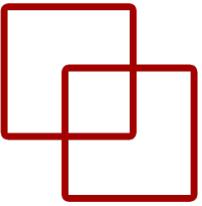
diente del Poder Ejecutivo de la  
República Española

io de 1873-7 de septiembre de 1873

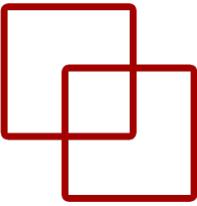
or Francisco Pi y Margall

Emilio Castelar

# Doctorado - UCLM Albacete

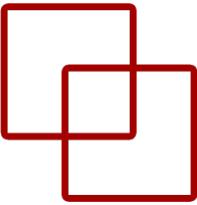


# Doctorado - UCLM Albacete



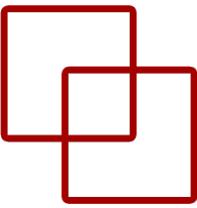
Imágenes tomadas de diferentes sitios de internet para una finalidad interna y no pública

# Doctorado - UCLM Albacete



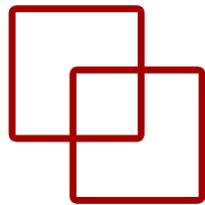
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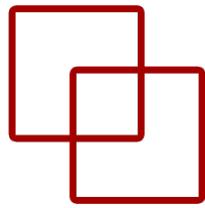


Imágenes tomadas de diferentes sitios de internet para una finalidad interna y no pública

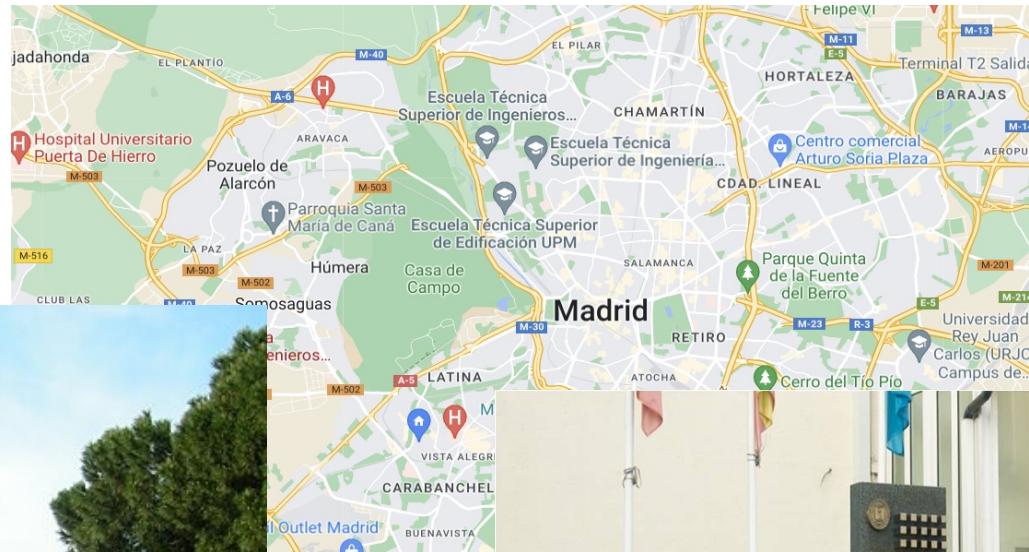
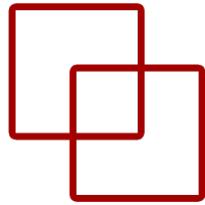
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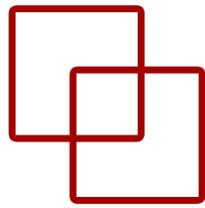
Imágenes tomadas de diferentes sitios de internet para una finalidad interna y no pública



# OEG - UPM



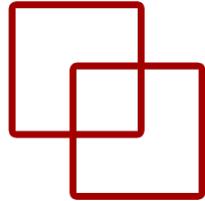
# UNED





# Estudiar en la UNED

# UNED como universidad en Perú



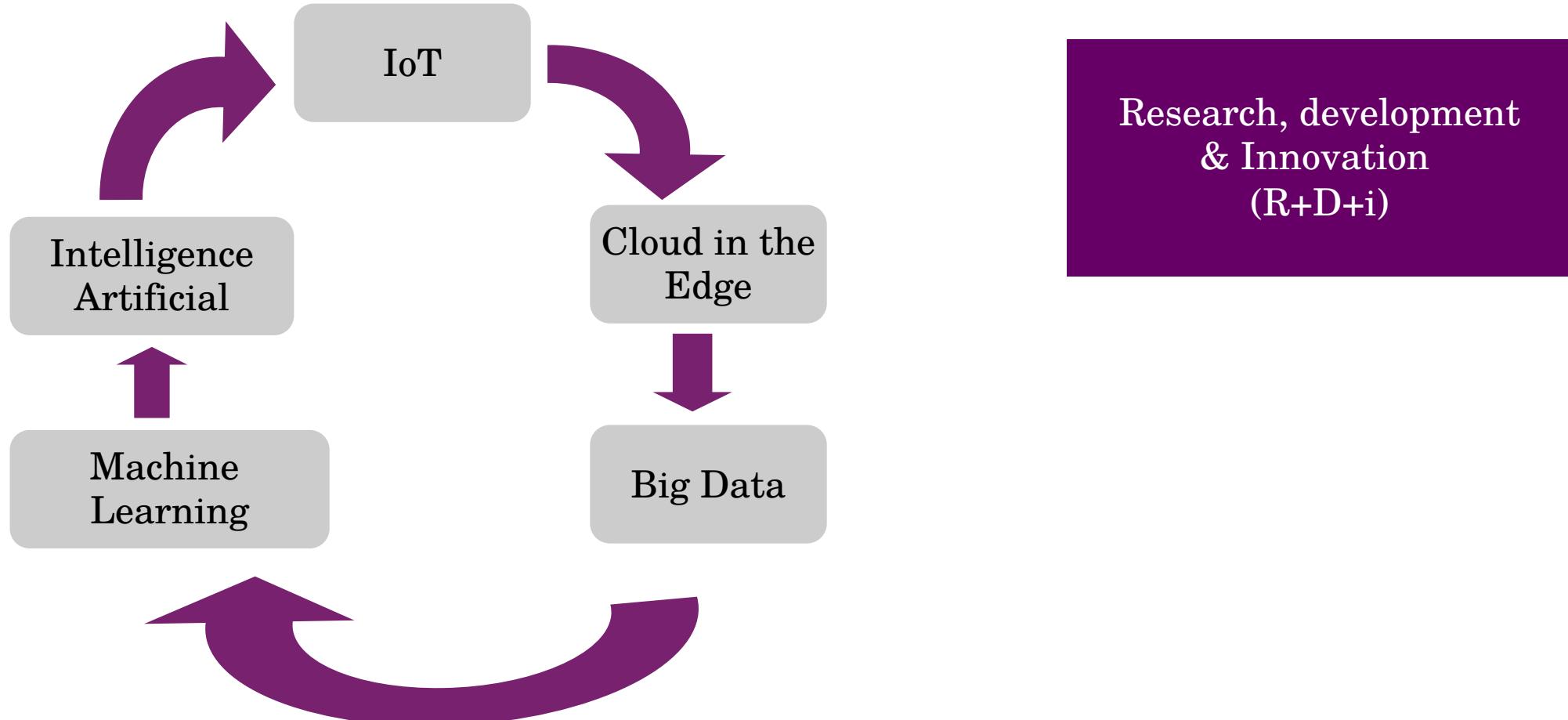
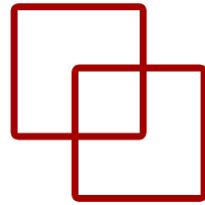
- Universidad pública con representación a nivel mundial.
  - Tasas muy bajas con una exigencia alta.
  - Títulos europeos oficiales
- En Lima, el centro UNED es el centro español en Salaverry.
- Posibilidad de estudiar pregrado y posgrado:
  - Máster de Inteligencia Artificial
  - Otros máster de informática





# Lines of research

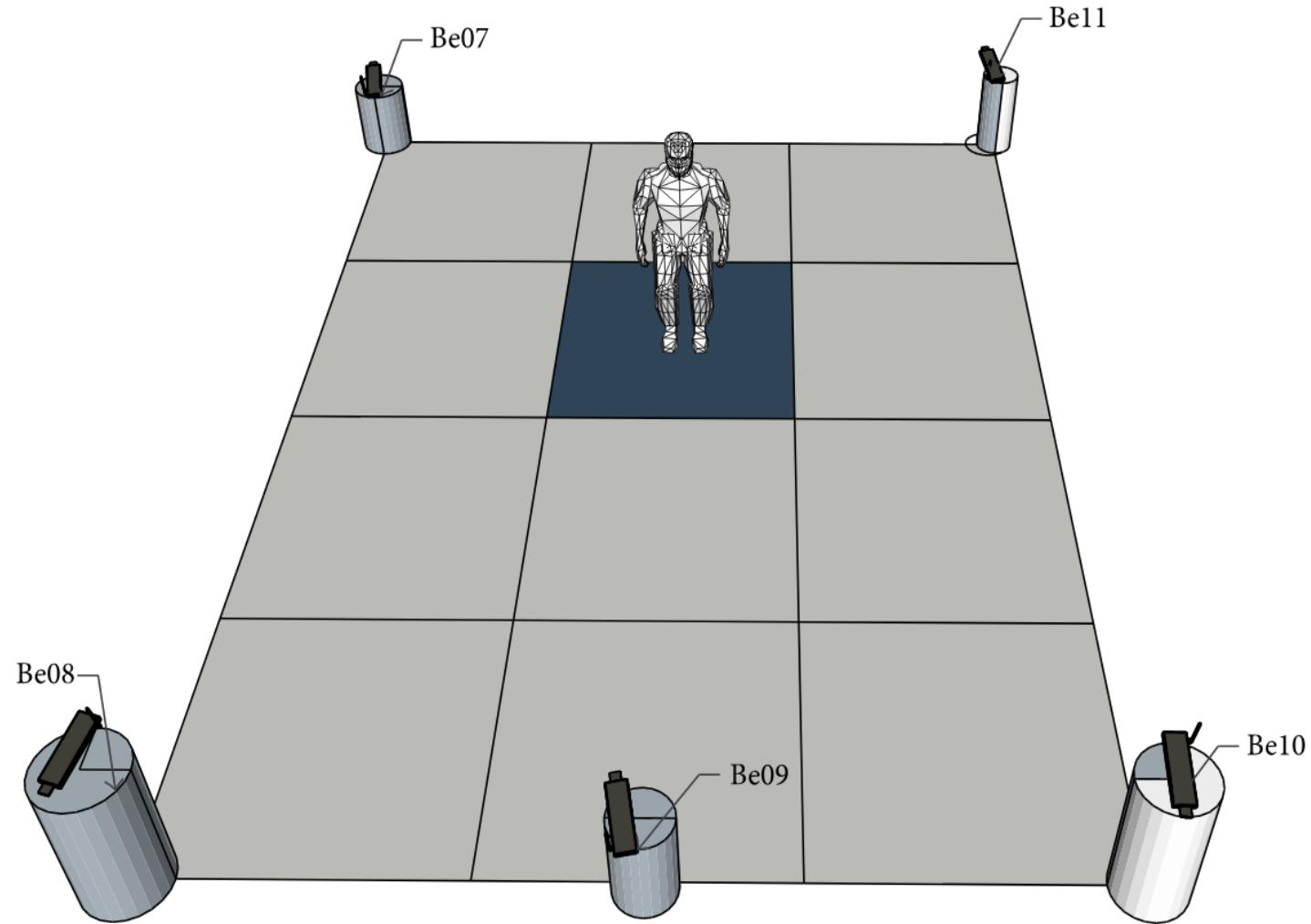
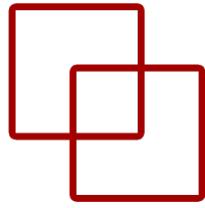
# ICBM-AI





# Indoor Localization

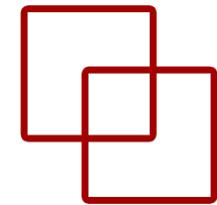
# Indoor Localization



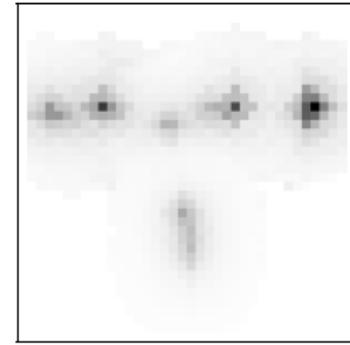
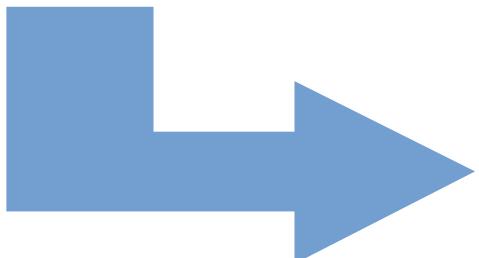


# Synthetic images

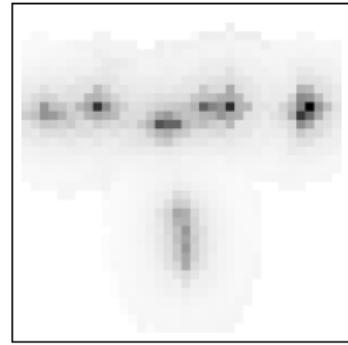
# Synthetic images



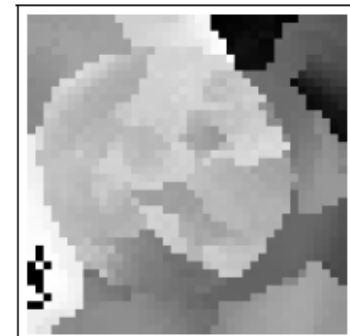
Be07	Be08	Be09	Be10	Be11	Sector
-65	-61	-74	-73	-67	1
-60	-57	-83	-62	-69	2
-66	-70	-78	-63	-73	3
...	...	...	...	...	...
-58	-66	-71	-73	-69	14
-60	-62	-73	-69	-57	15



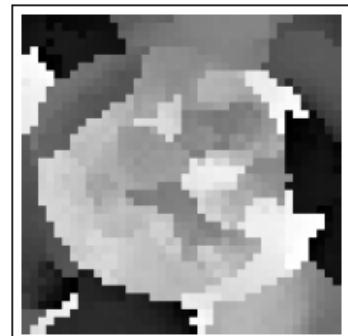
(a) TINTO - Sample 1.



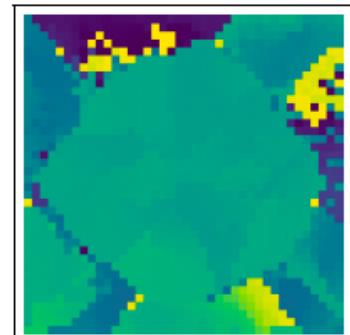
(b) TINTO - Sample 50,000.



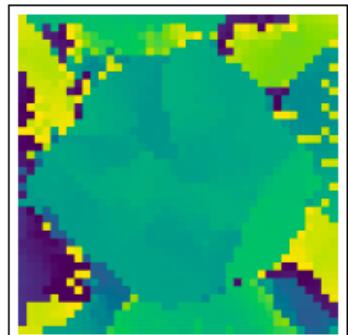
(c) IGTD - Sample 1.



(d) IGTD - Sample 50,000.



(e) REFINED - Sample 1.

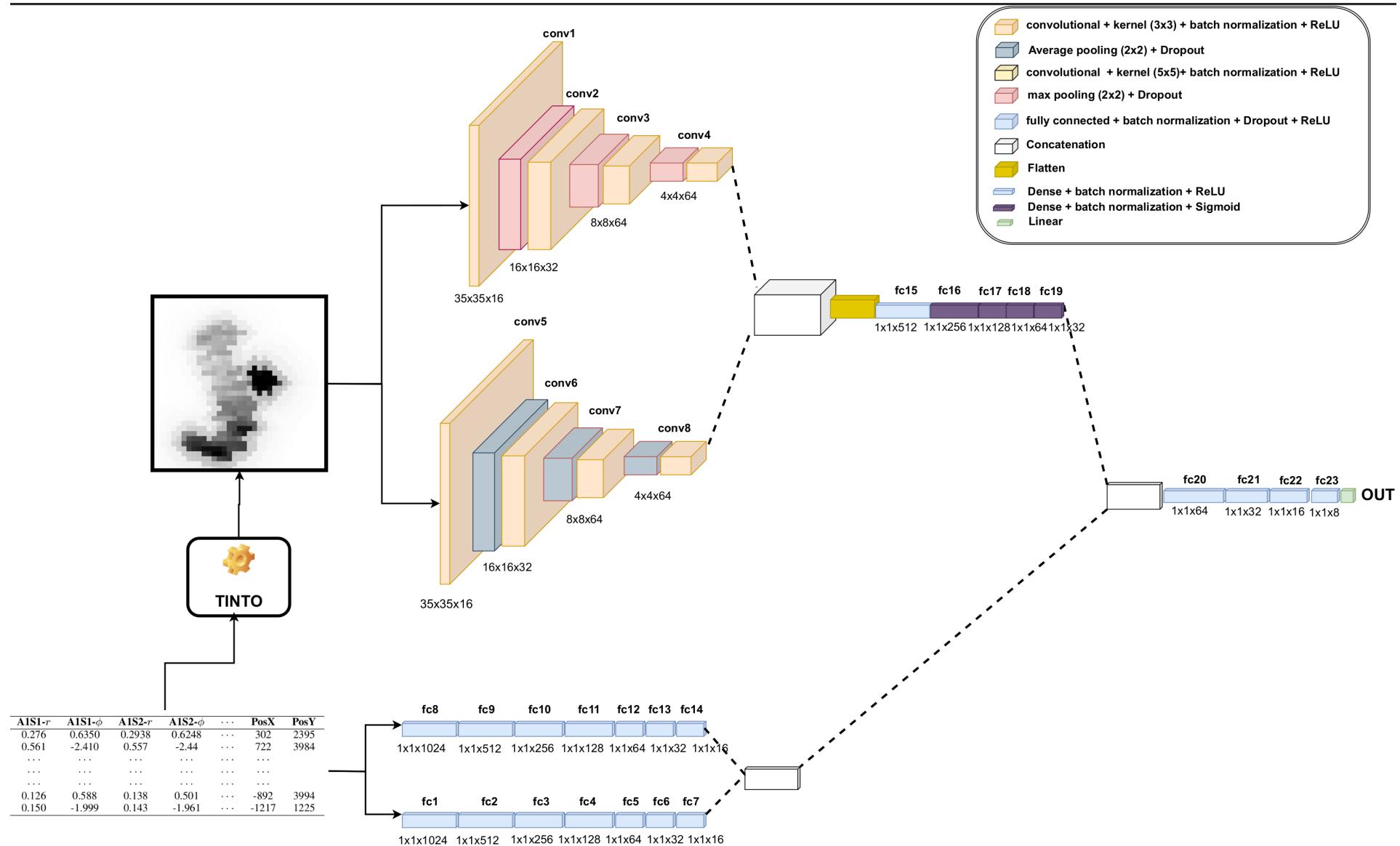
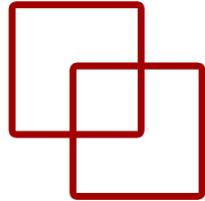


(f) REFINED - Sample 50,000.

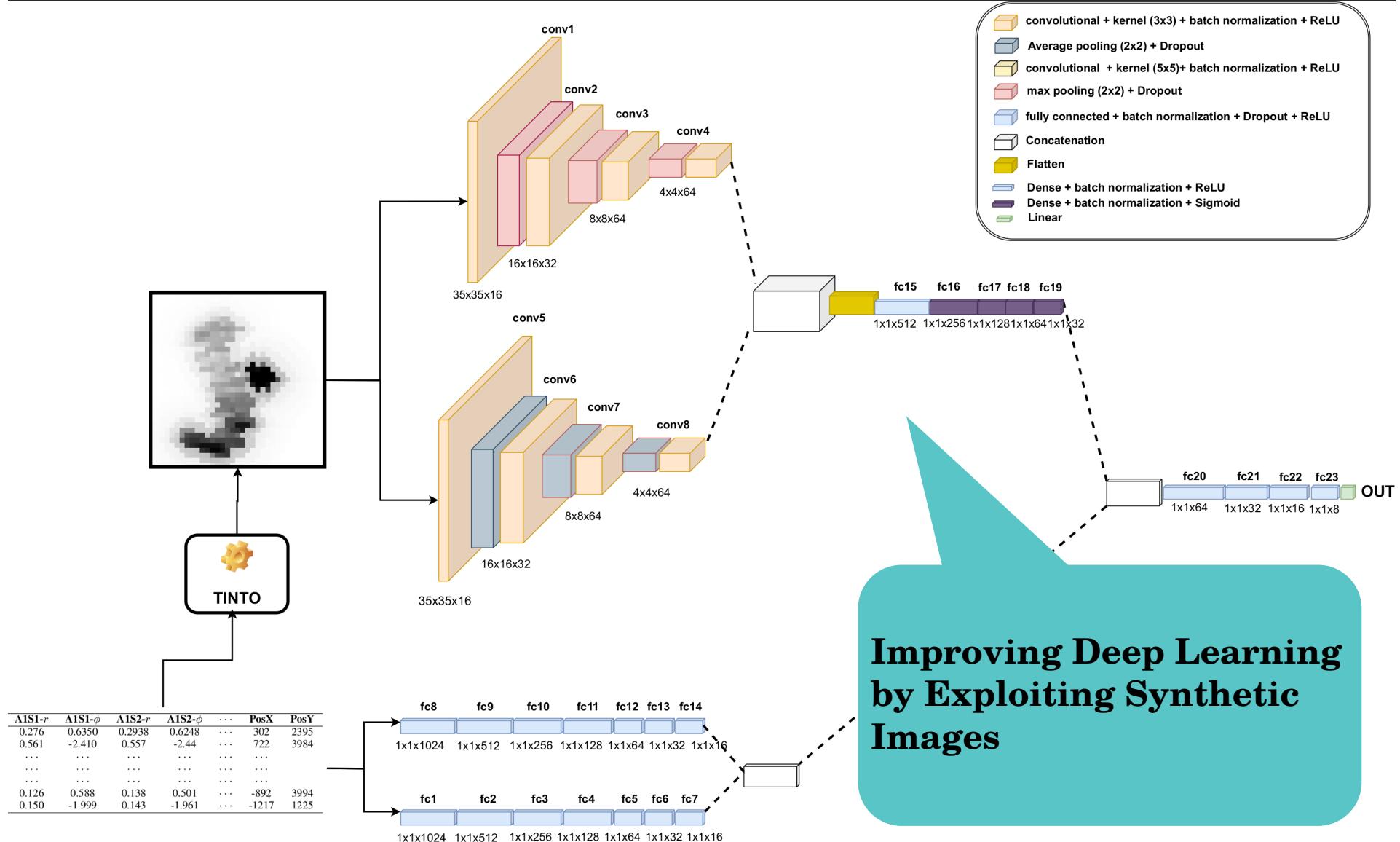
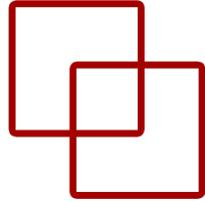


# Hybrid Neural Network

# Hybrid Neural Network



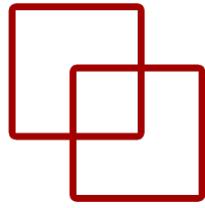
# Redes Neuronales híbridas





# Seminar Modules

# Academic Modules

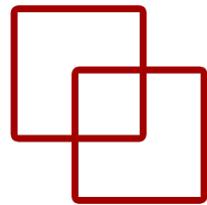


**BLOCK 1:**

**Convolutional Neural  
Networks**



# Academic Modules



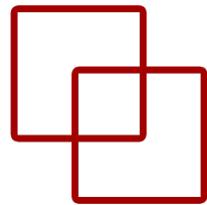
**BLOCK 1:**

**Convolutional Neural  
Networks**

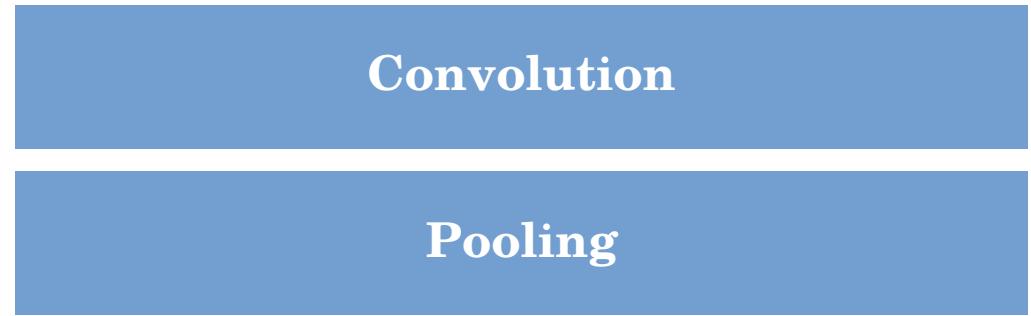


**Convolution**

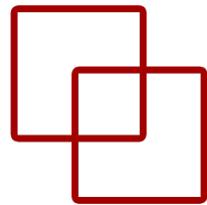
# Academic Modules



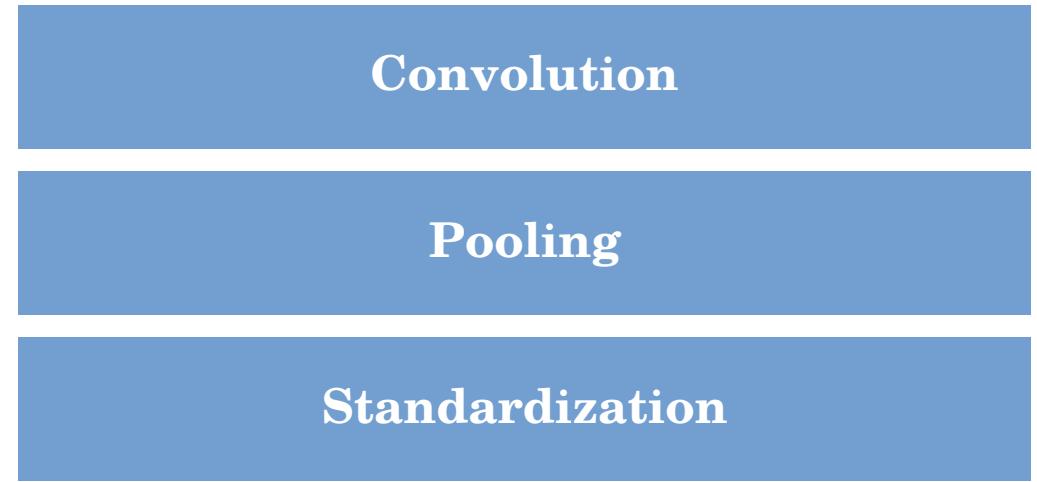
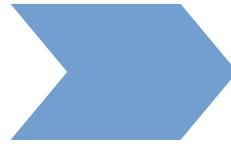
**BLOCK 1:**  
**Convolutional Neural  
Networks**



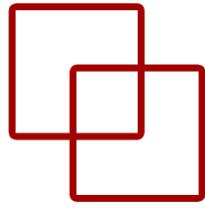
# Academic Modules



**BLOCK 1:**  
**Convolutional Neural  
Networks**



# Academic Modules

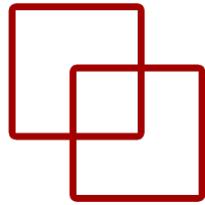


**BLOCK 2:**  
**Transformers**



**BLOCK 1:**  
**CNN**

# Academic Modules



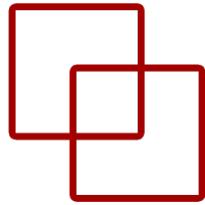
**BLOCK 2:**  
**Transformers**



**Attention**

**BLOCK 1:**  
**CNN**

# Academic Modules



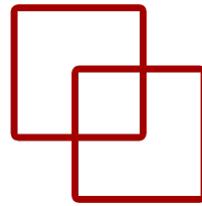
**BLOCK 2:**  
**Transformers**



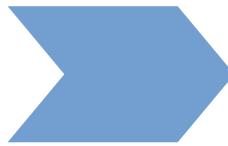
**Attention**  
**Transformers**

**BLOCK 1:**  
**CNN**

# Academic Modules



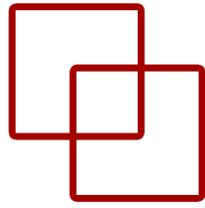
**BLOCK 2:**  
**Transformers**



**Attention**  
**Transformers**  
**Vision Transformers (ViT)**

**BLOCK 1:**  
**CNN**

# Academic Modules



**BLOCK 3:**

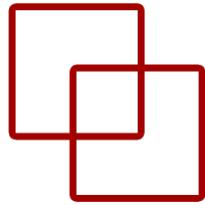
**Synthetic images**



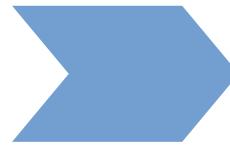
**BLOCK 1:**  
**CNN**

**BLOCK 2:**  
**Transformers**

# Academic Modules



**BLOCK 3:**  
**Synthetic images**

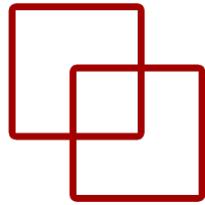


**Methods**

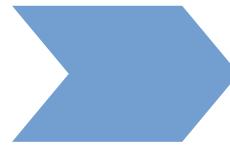
**BLOCK 1:**  
**CNN**

**BLOCK 2:**  
**Transformers**

# Academic Modules



**BLOCK 3:**  
**Synthetic images**

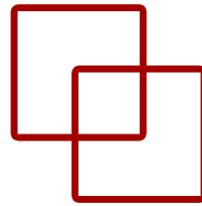


**Methods**  
**TINTOlib**

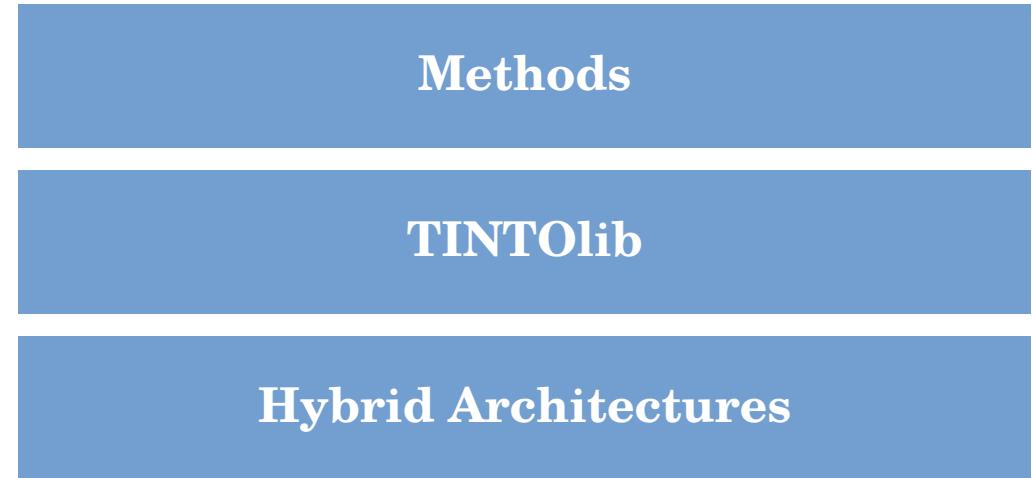
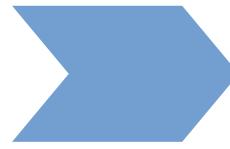
**BLOCK 1:**  
**CNN**

**BLOCK 2:**  
**Transformers**

# Academic Modules



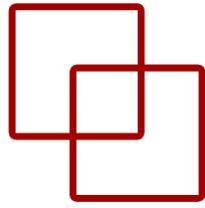
**BLOCK 3:**  
**Synthetic images**



**BLOCK 1:**  
**CNN**

**BLOCK 2:**  
**Transformers**

# Academic Modules



## Challenge

**BLOCK 1:**  
**CNN**

**BLOCK 2:**  
**Transformers**

**BLOCK 3:**  
**Synthetic Images**



# Resources



# Download Resources

- Download link:
  - <https://bit.ly/3K886Dd>



# ¡Gracias!



**Dr. Manuel Castillo-Cara**

[www.manuelcastillo.eu](http://www.manuelcastillo.eu)

**Departamento de Inteligencia Artificial  
Escuela Técnica Superior de Ingeniería Informática  
Universidad Nacional de Educación a Distancia (UNED)**