MohamedAli Souibgui

Research Engineer / Scientist

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About

Highly skilled researcher specialized in Computer Vision (CV) and Machine Learning (ML). I received the PhD degree in computer science from the Autonomous University of Barcelona (UAB). I am currently a researcher at the Computer Vision Center (CVC), Barcelona, Spain. I developed several machine learning models and published novel research papers. Passionate about Algorithms and Data Structures (ADS) and used to participate in coding competitions (International Collegiate Programming Contest (ICPC), hackerrank, etc).

Work Experience

Oct 2019–Now **Researcher**, *Computer Vision Center (CVC)*, Barcelona, Spain.
- Responsible on the document images processing part research and development within the European project Decrypt.
- Design, implement and maintain machine learning models for text recognition (OCR), object detection, image quality enhancement and image generation.
- Publish and present the novel research work on top ranked journals (PAMI, PR) and conferences (AAAI, WACV, ICPR)

Oct 2018–Aug 2019 **Computer Vision Researcher**, *CRNS*, Sfax, Tunisia.
- Being part of the DeepVision and work on several computer vision problems.
- Design and implement deep learning models for image quality enhancement and image generation.

Mai 2019–Jun 2019 **Research Intern**, *Computer Vision Center (CVC)*, Barcelona, Spain.
- Design and implement a deep learning model for text image generation.

Jan 2019–Apr 2019 **Intern**, *Satoripop*, Sousah, Tunisia.
- Being a part of the R&D Team.
- Design and implement a deep learning model for automatic website code generation (HTML and CSS) from a handwritten sketch design image.

Education / Certificates

Oct 2019–Dec 2022 **PhD degree in computer science**, *Autonomous university of Barcelona*, Computer Vision Center (CVC), Topics: *Computer Vision / Deep Learning / Document analysis / OCR*.

2018 **Certificate in Deep Learning Specialization**, *a 5-course specialization by deeplearning.ai*, on Coursera.

Sep 2015–Mar 2018 **Master's degree in computer science**, *University of Monastir*, Tunisia, *Master's degree.*
Topics: *Automatic Reasoning Systems (Logics, Constraint Programming, ...) / Pattern Recognition / Artificial Intelligence*

Sep 2012–Jun2015 **Bachelor's degree in computer sciences**, *University of Monastir*, Tunisia, *Bachelor's degree.*
Topics: *Object Oriented Programming / Algorithms and Data Structures / Software Development / Databases (SQL)/ Complexity / etc.*

Areas of Expertise

Deep Learning:
- Artificial Neural Networks (**ANN**)
- Convolutional Neural Networks (**CNN**)
- Generative Adversarial Networks (**GANs**)
- **Transformers**
- Recurrent Neural Networks (**RNN**)
- Few-shot Learning
- Self-supervised Learning

Computer Vision:
- **Object Detection**
- **Classification**
- Optical Character Recognition (**OCR**) / **Text Spotting**
- **Image Processing and Enhancement**
- **Image Generation**
- etc.

Programming Languages/Libraries

- **Python (Pytorch , Keras, Tensorflow, OpenCV, scikit-learn, Numpy, Pandas, . . .)**
- **Matlab**, C, C++, C#, Java . . .
- Latex, Javascript, HTML, CSS (Bootstrap), . . .

Research Interests

- **Artificial intelligence**
- **Computer vision**
- **Machine learning / Deep learning**
- **Document Analysis / Intelligence / Understanding**
- **Natural language processing**

Publications

Journals:

- **Souibgui, M. A.**, & Kessentini, Y. (2020). *DE-GAN: A conditional generative adversarial network for document enhancement*. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
- Jemni, S. K.*, **Souibgui, M. A.***, Kessentini, Y. &. Fornés, A (2021). *Enhance for Better Reading: A Multi-Task Adversarial Network for Handwritten Document Image Enhancement*. Pattern Recognition. 123.
- **Souibgui, M. A.**, Fornés, A., Kessentini, Y., & Megyesi, B. (2022). *Few Shots Are All You Need: A Progressive Few Shot Learning Approach for Low Resource Handwritten Text Recognition*. Pattern Recognition Letters.
- **Souibgui, M. A.**, Bensalah, A., Chen, J., Fornés, A., & Waldispühl, M. (2022). A User Perspective on HTR methods for the Automatic Transcription of Rare Scripts: The Case of Codex Runicus. Journal on Computing and Cultural Heritage (JOCCH).

Conferences:

- **Souibgui, M. A.***, Biswas, S.*, Mafla, A.*, Biten, A. F.*, Fornés, A., Kessentini, Y., Lladós, J, Gomez, L, & Karatzas, D. (2022). *Text-DIAE: Degradation Invariant Autoencoders for Text Recognition and Document Enhancement*. In 2023 AAAI Conference on Artificial Intelligence (AAAI)(Accepted)
- **Souibgui, M. A.***, Biswas, S.*, Jemni, S. K.*, Kessentini, Y., Fornés, A., Lladós, J, & Pal, U. (2022). *DocEnTr: An End-to-End Document Image Enhancement Transformer*. In 2022 26th International Conference on Pattern Recognition (ICPR).
- **Souibgui, M. A.***, Biten, A. F.*, Dey, S.*, Fornés, A., Kessentini, Y., Gomez, L., Karatzas, D. & Lladós, J (2022). *One-shot Compositional Data Generation for Low Resource Handwritten Text Recognition*. In Winter Conference on Applications of Computer Vision (WACV) (pp. 935-943).
- Chen, J., **Souibgui, M. A.**, Fornés, A., & Megyesi, B. (2020, May). *A Web-based Interactive Transcription Tool for Encrypted Manuscripts*. In Proceedings of the 3rd International Conference on Historical Cryptology HistoCrypt 2020 (No. 171, pp. 52-59).
- **Souibgui, M. A.**, Fornés, A., Kessentini, Y., & Tudor, C. (2020). *A Few-shot Learning Approach for Historical Ciphered Manuscript Recognition*. In 2020 25th International Conference on Pattern Recognition (ICPR). IEEE.
- **Souibgui, M. A.**, Kessentini, Y., & Fornés, A. *A Conditional GAN Based Approach for Distorted Camera Captured Documents Recovery*. In 2020 4th Mediterranean Conference on Pattern Recognition and Artificial Intelligence (MedPRAI). Springer.

* Equal contribution.

- Chen, J., **Souibgui, M. A.**, Fornés, A. & Megyesi, B. (2021, August). *Unsupervised Alphabet Matching in Historical Encrypted Manuscript Images*. In the 4th International Conference on Historical Cryptology HistoCrypt (pp. 34-37).
- De Gregorio, G., Biswas, S., **Souibgui, M. A**., Bensalah, A., Lladós, J., Fornés, A., & Marcelli, A. (2022). A Few Shot Multi-Representation Approach for N-gram Spotting in Historical Manuscripts. In 2022 18th International Conference on Frontiers in Handwriting Recognition (ICFHR) (Accepted).

Workshops:

- Torras, P., **Souibgui, M. A.**, Chen, J., & Fornés, A. (2021, September). *A Transcription Is All You Need: Learning to Align Through Attention*. In International Conference on Document Analysis and Recognition (GREC Workshop) (pp. 141-146). Springer, Cham.

Languages

English	Excellent writing, Excellent speaking
French	Good writing, good speaking
Arabic	Native language

Awards

- **Best student paper award:** The prize was given by the ICPR 2020 organizing committee for the paper entitled: $A\ Few-shot\ Learning\ Approach\ for\ Historical\ Ciphered\ Manuscript\ Recognition$