ANASS **BELCAID**

PHD Mathematics | Computer Science | Computer Vision

in linkedin.com/in/belcaid-anass-b8688136   github.com/anassBelcaid
+212 619325099   **@** anass.belcaid@mail.com
Imm 7 Bel Air 5, BMO Meknes, Morocco
i 01 May 1981 in Meknes

Phd in applied Mathematics and computer science at the Mathematical Department of the National School of Art and Craft Meknes. My research work focus on artificial intelligence tools in (machine/deep) learning for several computer vision tasks. During my phd preparation, I had the chance to give several courses on scientific computing and computer science. I also acquired a significant experience with artificial intelligence tools from a set of world class course from prestigious universities like Berkeley and Stanford.

🎓 SCHOLARSHIP

2013-2018	Phd in Applied Mathematics and Computer Sciences : A combinatorial solver for a Markov Random fields energy minimization in change point detection. Supervised by **M.Douimi**
2008	Master's Degree in Mathematical Modeling and Scientific computing at National School of Arts et Craft with collaboration with Faculty of Sciences Meknes : *Design of a local Cluster for synchronous and asynchronous parallel algorithms for finite volume methods*.
2005	Bachelor's Degree in Applied Mathematics.
2002	Associate's degree in Mathematics and Physics.

66 RESEARCH :

JOURNAL ARTICLES :

> A DPS extension to restore blurred and noisy piecewise constant signals,
> *Inverse Problems in Science and Engineering*, 2017 DOI=https://doi.org/10.1080/17415977.2017.1400029.

> Recursive reconstruction of piecewise constant signals by minimization of an energy function
> *Inverse problems and Imaging*, 2018, DOI=https://doi.org/10.3934/ipi.2018038

> A novel change point detection using approximate Random Blanket and the Line Process Energy,
> International Journal on Artificial Intelligence tools, 2020.

> Non convex Energy Minimization with Unsupervised Line Process Classifier for Efficient Piecewise Constant,
> *Statistics, Optimization & Information Computing*, 2021,

> Constrained Energy Variation for Change Point Detection,
> Multidimensional Systems and Signal Processing. 2020, *Article under review*

CONFERENCES :

> A DPS filter for NonConvex Edge Preserving for PieceWise Constant Signals Denoising
> *The 4th International Conference on Optimization and Applications.*, April 2018, DOI=http://www.icoa2018.net/

> Parallel Implementation of the DPS Algorithm for Linear Inverse Problems.
> *5 ème International conference of the mathematical Society SM2A*, Mars 2017.

> The DPS algorithm for linear inverse problems
> *Scientific meetup of the LM2I laboratory*, Décembre 2017.

> Pruning Stategy for the DPS algorithm using unsupervised Learning binary classifier *7ème International Workshop on applied mathematical tendencies*, May 2015.

> Extension for the DPS algorithm for linear inverse problems
> *International workshop TELECOM2015*, Mai 2015.

> Recursive Implementation of the DPS algorithm *Scientific Phd's day at ENSAM*, June 2015.

ACADEMIC PROJECTS :

> Design and implementation of local Cluster for the Big data Analytics
> *Research Project in the National School of Arts and Craft- Meknes.*

> Automatic transcription of the Moroccan dialect.
> *Research project in the National School of Applied Sciences - Fes*

💼 Teaching experience

2021 | Algebra 101, School of Artificial Intelligence and digital Engineering, Fes
- › Introductory course to linear Algebra.
- › Course for the **first** year engineers at EIDIA-Euromed.
- › The course has a volume of **68** hours per year.

algebra | theory | Sympy

2020 | introduction to Computer Science, EST, Meknes
- › Introduction to Computer Science with Visual Basic.
- › Course for the **first** year engineers at EST Meknes.
- › The course has a volume of **64** hours per year.

Computer science | visual basic

2019 | Artificial Intelligence Course, ENSA, Fes
- › Introduction to the Artificial Intelligence filed, search, planning, and reinforcement learning.
- › Course for the **fourth** year engineers at ENSA Fes.
- › The course has a volume of **32** hours per year.

machine learning | course | Practical Session | Python

2019
2014 | Practical Sessions on Finite elements methods, ENSAM, Meknes
- › Supervise the practical session to implement the finite elements methods on *Matlab* or *FreeFem*.
- › The course is taught for the **fourth** year engineers at ENSAM Meknes
- › The course has a volume of **32** hours per year.

Matlab | Scientific computing | FEM | Practical Session

2018
2007 | Practical Session on programming with C, ENSAM, Meknes
- › Supervise the practical sessions on the C programming language.
- › Course taught for the **second** year engineers at ENSAM Meknes
- › The course has a volume of **80** hour per year.

C programming | Linux | Practical session

2016
2014 | Course on algorithms and the C Language, ENSAM, Meknes
- › Course on algorithms and C language.
- › Course taught for the **Second** year engineers at ENSAM Meknes
- › The course has a volume or **140** per year.

C programming | Algorithms | Course

2018
2009 | Practical Session on Scientific Computing, ENSAM, Meknes
- › Supervise the Practical sessions on numerical methods with *MATLAB*.
- › The course is caught to the **third** year engineers at ENSAM-Meknes
- › The course material covers : **ODE**, **Linear Systems** and **Finite Differences method**.
- › The course has a volume for **72** per year.

Matlab | Scientific Computing | Practical Sessions

2018
2013 | Object Oriented Programming with Java, Sum-MTI, Meknes
- › Course on the object oriented programming concepts with java
- › course taught for the **third** year at the SUP-MTI school.
- › The course has a volume for **50** per year.

Java | OOP | Course

2017
2011 | Practical Session on Numerical Mehtods, ENSAM, Meknes
- › Supervise the practical sessions on the numerical methods with *MATLAB*.
- › Course taught for the **second** year engineers at ENSAM Meknes.
- › The course material covers : **Interpolation**, **Numerical Integration**, **Root finding**.
- › The course has a volume of **32** per year.

Matlab | Scientific computing | Practical session

2017
2016 | Course on Software Design with UML, SUP-MTI, Meknes
- › Course on software design with **UML**
- › Course taught for the **fourth** year enginneers at School SUP-MTI.
- › The course has a volume of **50** hour per year.

UML | Course

2016
2017

Course on Mathematics, Audentia School , Meknes

- › Course covering the program for **second** preparatory year of *ECT2*.
- › The course has a volume of **8** hour per week.

`Maths` `Course` `Scilab`

2013
2009

Course on Scientific Computing with Matlab, Faculty of Sciences, Meknes

- › Course on numerical methods with Matlab for the **Master**'s students.
- › The course introduce the following topics : (differentiation, integration, interpolation, ODE, linear system, root finding).
- › The course has a volume of **20** hours per year.

`Scientific computing` `Matlab` `course`

2012
2013

Course on Object Oriented Programming with Java, ENSAM, Meknes

- › Course cover the concept of OOP with Java.
- › Course taught for professional bachelors degree in development and networking.
- › The course has a volume of **30** hours per year.

`Java` `OOP` `Course`

2011
2012

Course on Programming with C++, Faculté des Sciences, Meknès

- › Course taught to the **master**'s students on Mathematics.
- › The course over all the concepts of OOP with the C++ language.
- › The course has a volume of **30** hours per day.

`C++` `OOP` `Course`

❝ Online Courses

2020	**Probabilistic Graphical Models** : advance course on probabilistic graphical models and their strong link with deep, generative recent models. Course from the Carnegie Mellon University.
2019	**Introduction to Deep Learning** : First course on the *Acvanced Machine learning* specialization. Course from the *National Research University Higher School of Economics*. coursera.org/verify/MLWXCHQB33NR
2019	**How to win a data Science Competition : learn from top Kagglers** : Second course on the data analysis and machine learning on the specialization : *Advanced Machine Learning*. Course from *National Research University Higher School of Economics*. coursera.org/verify/NSKAM38U52S6
2019	**Bayesian methods for machine learning** : Third course on Bayesian methods for machine learning problems on the Specialisation : *Advanced Machine Learning*. Course from *National Research University Higher School of Economics*. coursera.org/verify/QADS8JCQ3N43
2018	**CS231n : Convolutional Neural Networks for Visual Recognition** : Advanced course on neural network for computer vision. Course from the university of *Stanford*. http://cs231n.stanford.edu/
2018	**Statistical Learning** : Course on Statistical learning from the *Stanford* University. https://verify.lagunita.stanford.edu/SOA/592fd11202f448409c9ee08e7617bee2
2018	**Algorithms : Design and Analysis** : Course on the design and analysis of algorithms from the university of *Stanford*. https://verify.lagunita.stanford.edu/SOA/440768a11b3b41938b52f2965022a6eb/
2018	**Algorithms : Design and Analysis Part 2** : Second course on advanced Design and analysis of algorithms from the *Stanford* university. *Stanford*. https://verify.lagunita.stanford.edu/SOA/440768a11b3b41938b52f2965022a6eb/
2017	**CS131 Computer Vision : Foundations and Applications** : Course on computer vision and its application from the *Stanford* university,CS131_fall1718
2017	**Probabilistic Graphical Models**, Course on Graphical Probabilistic Model and their application to inference and decision theory from the *Stanford* university. Lien Coursera
2017	**Introduction to Probability - The Science of Uncertainty**, Course covering all the basic concept on probability from *MIT*. https://courses.edx.org/courses/course-v1:MITx+6.041x
2017	**International Summer School On Deep Learning** : *DEUSTO University of BILBAO*, 8 advanced courses on deep learning theory, http://grammars.grlmc.com/DeepLearn2017/
2016	**Machine Learning : Regression**, *University of Washington*, https://www.coursera.org/learn/ml-regression/
2016	**Machine Learning Foundations : A Case Study Approach**, *University of Washington*, https://www.coursera.org/learn/ml-foundations/home/
2016	**Machine Learning** : classical course on machine learning. *Stanford University*, https://www.coursera.org/learn/machine-learning
2015	**How to write a scientific article**, *Research Group on Applied Linguistics and the Teaching of Languages*
2014	**Convex Optimization** : Course on convex optimization from the *Stanford* university. https://lagunita.stanford.edu/courses/Engineering/CVX101/Winter2014/info
2014	**Digital Signal Processing** : Course on digital signal processing from *Polytechnic School of LAUSANNE*. https://www.coursera.org/account/accomplishments/certificate/T364M98FQF

☰ Skills

Operating systems	Mac OS X, Linux
Programming	Python(numpy, scipy, matplotlib, pandas, sckit-learn, pytorch, tensorflow), C/C++, Java, Fortran.
Scientific languages	Julia, Matlab, Scilab, Octave, freefem
Parallel computing	Cuda,MPI, OpenMP
Other	GUI with (QT or Python), Container (docker)

🌐 Languages

Arabic ●●●●●
French ●●●●●
English ●●●●○

✚ Strength

- › Passionate
- › Motivated
- › Experienced

❝ Referees

H.Allouche
PES, FS. Meknès
@ allouche_hassane@yahoo.fr
📞 +212 6 61 01 30 60

H.Belkbir
PA, ENSA-Fes
@ hicham.belkbir@usmba.ac.ma
📞 +212 6 74 26 76 37

H.Benazza
PH, ENSAM-Meknès
@ hbenazza@yahoo.fr
📞 +212 6 69 91 24 64