

# The 2<sup>nd</sup> INTERNATIONAL CONFERENCE ON RESEARCH IN APPLIED MATHEMATICS AND COMPUTER SCIENCE

July 15-18, 2020



\*\*\* PROGRAM ICRAMCS 2020 \*\*\*

Google Meet

Wednesday, July 15, 2020

08:00-09:00 **Welcome and Opening Remarks**

**Opening Speech**

**Mrs. Awatif HAYAR, President of University Hassan II, Casablanca**

**Mr. Mohammed TALBI, Dean of Faculty of Sciences Ben M'sick**

**Mr. Mohammed AZOUAZI, Head of Department of Maths. Comp. Sci.**

**Mr. Naceur ACHTAICH, Director of the LAMS laboratory**

**Mr. Youssef EL FOUTAYENI, Organizing Committee**

E. AZROUL  
ON SOME  
FRACTIONAL  
PDES



A. SOUFYANE  
SOME RECENT RESULTS  
FOR THE ONE-  
DIMENSIONAL  
SUSPENSION BRIDGES  
MODEL



B. AHARMIM  
APPLICATIONS  
NON LINÉAIRES  
PRÉSERVANT LE  
SPECTRE



A. OUHINO  
MATHEMATICAL  
MODELS IN  
EPIDEMIOLOGY



Y. EL QALLI  
LES  
MATHEMATIQUES ET  
LE MONDE  
FINANCIER, QUELS  
LIENS?



C. AOUITI  
INTRODUCTION  
AUX RESEAUX DE  
NEURONES  
RÉCURRENTS



A. MOUSSAOUI  
MATHEMATIQUES  
ET DYNAMIQUE DES  
POPULATIONS



Z. RACHIK  
SOA CONTEXTUELLE:  
SELECTION ET  
ADAPTATION  
DYNAMIQUE DES  
SERVICES



# Session I: Applied Mathematics

Chairmen: KHALID ADNAOUI - ABDELGHALI AMMAR -  
KHALID EL YASSINI - FOAD LAHMIDI - ABDELHAK YAACOUBI

<b>Conference n°①: ELHOSSINE AZROUL</b>	
<b>SIDI MOHAMED BEN ABDELLAH UNIVERSITY   MOROCCO</b>	
<b>ON SOME FRACTIONAL PDES</b>	
09:00 - 09:30	
09:30 - 09:45	Yamna Achik, Asmaa Idmbarek, Hajar Nafia, Imane Agmour and Youssef El foutayeni: A fast algorithm for solving the linear complementarity problem in a finite number of steps.
09:45 - 10:00	Amine Alabkari: Contrôle optimal d'un modèle SIR
10:00 - 10:15	Benfatah Youssef, El Bhih Amine and Rachik Mostafa: On the Maximal Output Admissible Set for a Class of Bilinear Discrete System.
10:15 - 10:30	Hajar Bouazzaoui, My ismail Mamouni and Mohamed Abdou Elomary: Bongard Problems: Image Clustering By Means Of Persistent Homology and Group Equivariant Non Expansive Operators
10:30 - 10:45	Hamza Boutayeb, Mostafa Rachik, Omar Zakary and Sara Bidah: An optimal control approach for a discrete time model of information dissemination
10:45 - 11:00	Toufik Chaayra, Hussain Ben-Azza and Faissal El Bouanani: The Algebra of Fox's H Distributions and its Application in Wireless Communications

## Coffee break (11:00 - 11:30)

11:30 - 11:45	Abderrahim Boussaïri, Brahim Chergui, Pierre Ille and Mohamed Zaidi: An Algorithm for the Realization of 3-uniform Hypergraphs by tournaments
11:45 - 12:00	SALOUA CHOUINGOU, M.ANAS HILALI, M.RACHID HILALI and ABDELHADI ZAIM: A generalization of the Hilali conjecture
12:00 - 12:15	Abdeljabbar El Hilali: Sampling designs for approximating the inverse function with shape-preserving quadratic splines
12:15 - 12:30	Sabira Benalia and Mohammed Hachama: Nonlocal approaches for image denoising
12:30 - 12:45	El Houssaine Hssayni and Mohamed Ettaouil: Bayesian Neural Networks Applied to Face Recognition
12:45 - 13:00	Driss Kada, Omar Balatif, Mostafa Rachik and El Houssine Labriji: Discrete Mathematical Modeling of the New Corona Virus: Optimal Control Approach for Intervention Strategies

## Lunch (13:00 - 15:00)

15:00 - 15:15	Salma Lahbabi and David Gontier: The reduced Hartree-Fock model with self-generated magnetic Fields
15:15 - 15:30	Ahmed Lahmoudi and El Hassan Lakhel: Controllability of semilinear stochastic impulsive functional differential equations driven by FBM with infinite delay
15:30 - 15:45	Mohamed Maidoumi, Mehdi Zahid and Bobker Daafi: Monte Carlo and Data scientist simulation methods for American options.
15:45 - 16:00	Youssef Ouafik: Numerical Simulation of a Thermo-electro-viscoelastic Contact Problem involving Tresca Friction Law
16:00 - 16:15	Lahcen Oumouacha, Rachid Fakhar and Hassan Benkhira: Dynamic frictional Contact Problem for Viscoelastic Thermo-piezoelectric Materials
16:15 - 16:30	Fares Yazid, Djamel Ouchenane and Fatima Siham Djeradi: GLOBAL NONEXISTENCE OF SOLUTIONS TO SYSTEM OF KLEIN-GORDON EQUATIONS WITH DEGENERATE DAMPING AND STRONG SOURCE TERMS IN VISCOELASTICITY
16:30 - 16:45	Nidal Echabbi and Amina Ouazzani Chahdi: Some associated curves of normal indicatrix of a regular curve
16:45 - 17:00	Karim Ktoub and Jamal Zahi: Modèles organisationnels des entreprises
17:00 - 17:15	Hassan Mouadi and Driss Karim: On the topology in zero-dimensional subrings of a product of rings
17:15 - 17:30	Zaim Abdelhadi: Variation on the conjecture of Hilali I

# Session II: Dynamical systems & Control

Chairmen: ABDELHADI ABTA - ALI BOUTOULOUT -  
HASSAN LAARABI - OMAR ZAKARY - TAREK ZARI

09:00 - 09:30	<b>Conference n°②: ABDELAZIZ SOUFYANE</b> <b>UNIVERSITY OF SHARJAH   UNITED ARAB EMIRATES</b> <b><i>SOME RECENT RESULTS FOR THE ONE-DIMENSIONAL SUSPENSION BRIDGES MODEL</i></b>
09:30 - 09:45	Moad Aboumalik, Yassine Himech, Abdallah Saad and Mohamed Essaaidi: Investigation sur les problèmes d'optimisation OPF\ED dans les $\mu$ -Réseaux intelligents : Nouvelle Approche par "Consensus distribué"
09:45 - 10:00	Myelkebir Aitalioubrahim: Upper semi-continuous non-convex differential inclusions
10:00 - 10:15	Abdelmajid Akil, Abdelwahed Touati and Nabila Rabbah: Nonlinear control of the HAGC by backstepping with integral action
10:15 - 10:30	Amine Bernoussi: Global Asymptotic Stability of a Generalized SEIRI Epidemic Model
10:30 - 10:45	Rachid Bouajaji, Laarabi Hassan and Mostafa Rachik: A multi-regions discrete TB epidemic model with an optimal control strategy
10:45 - 11:00	Salahaddine Boutayeb and Abdelhadi Abta: BOUNDARY CONTROL FOR A CLASS OF DELAYED REACTION-DIFFUSION SYSTEMS WITH SPATIALLY-VARYING COEFFICIENTS

## Coffee break (11:00 - 11:30)

11:30 - 11:45	Amine El Bhih, Youssef Benfatah and Mostafa Rachik: Exact determinations of maximal output admissible set for a class of nonlinear discrete systems
11:45 - 12:00	Bennacer El Hassouni, Abdellatif Ghacham Amrani and Ali Haddi: Modélisation d'un système photovoltaïque avec amélioration de l'algorithme MPPT type conductance incrémentale pour des changements rapides d'irradiation
12:00 - 12:15	Hanane Ferjouchia, Mostafa Rachik and Abdelfatah Kouider: Insulin Control of the Glucose-Insulin System : Type 1 Diabetes
12:15 - 12:30	Bouchaib Khajji, Abderrahim Labzai, Abdelfatah Kouidere, Omar Balatif and Mostafa Rachik: A Discrete Mathematical Modelling of the Influence of Alcohol Treatment Centers on the Drinking Dynamics using Optimal Control
12:30 - 12:45	Abdelfatah Kouidere, Abderrahim Labzai, Omar Balatif, Hanane Ferjouchia and Mostafa Rachik: Optimal control strategy with delay in state and control variables of a discrete mathematical modeling for the dynamics of diabetic population
12:45 - 13:00	Ahmed Kourrad, Khalid Adnaoui and Fouad Lahmidi: Contrôle optimal de certains modèles épidémiologies en dimensions deux.

## Lunch (13:00 - 15:00)

15:00 - 15:15	Hassan Laarabi, Abdelhadi Abta, Rachid Bouajaji and Mostafa Rachik: Optimal control of a delayed rumor propagation model
15:15 - 15:30	Abderrahim Labzai, Abdelfatah Kouidere, Bouchaib Khajji, Omar Balatif and Mostafa Rachik: Mathematical Modeling and Optimal Control Strategy for a Discrete Time Drug Consumption Model
15:30 - 15:45	Benniche Omar and Hachama Mohammed: Approximate null-controllability for systems governed by fully nonlinear differential inclusion
15:45 - 16:00	Loubna Ourabah, Badr Elkari and El Houssine Labriji: Synthesis of a Fuzzy logic controller to reduce urban congestion
16:00 - 16:15	Maryam Riouali, Fouad Lahmidi and Namir Abdelwahed: Zero output controllability of discrete-time positive switched systems
16:15 - 16:30	Amele Taïeb: Ulam-Hyers Stability of Singular FBVPs in Terms of the Caputo Derivative
16:30 - 16:45	Asmae Tajani, Fatima Zahrae El Alaoui and Ali Boutoulout: A Note On the Numerical Results of Regional Controllability for Caputo type Sub-Diffusion Processes.
16:45 - 17:00	Khalid Zguaid, Fatima-Zahrae El Alaoui and Ali Boutoulout: Regional Observability For Semilinear Fractional Systems

**Thursday July 16, 2020**

## Session III: Fixed Point Theory & Functional Analysis

Chairmen: SAID BENKADDOUR-KHADIJA BOUZKOURA-  
BACHIR KERBOUA - KHALID LOUARTITI-ABDERRAHIM EL ADRAOUI

09:00 - 09:30	<b>Conference n°③: BOUCHRA AHARMIM</b> <b>UNIVERSITÉ HASSAN II DE CASABLANCA   MAROC</b> <b>APPLICATIONS NON LINÉAIRES PRÉSERVANT LE SPECTRE</b>
09:30 - 09:45	Kenza Benkirane, Elmiloudi Marhrani and Abderrahim Eladraoui: THÉORÈME DU POINT FIXE ALÉATOIRE POUR APPLICATIONS $(\psi_1, \psi_2, \varphi)$ - FAIBLEMENT CONTRACTIVE DANS UN ESPACE DE BANACH SÉPARABLE
09:45 - 10:00	Mohammed Dahmouni, Mustapha Kabil, Karim Chaira and Abderrahim Eladraoui: Fixed point theorems in probabilistic metric spaces
10:00 - 10:15	Abderrahim Eladraoui, Mustapha Kabil and Samih Lazaiz: Some fixed point theorems in a set endowed with a binary relational system
10:15 - 10:30	Elkouch Youness, Marhrani Elmiloudi and Aamri Mohamed: Caristi type fixed point theorems in generalized metric spaces
10:30 - 10:45	Youssef Errai, Elmiloudi Marhrani and Mohamed Aamri: COMMON FIXED POINT FOR KANNAN TYPE CONTRACTIONS VIA INTERPOLATION
10:45 - 11:00	Mohamed Amine Farid, Chaira Karim, Marhrani El Miloudi and Aamri Aamri: Fixed Point Theorems of Block Operator Matrix Under Weak Topology
<b>Coffee break (11:00 - 11:30)</b>	
11:30 - 11:45	Jaouad Jeddi, Mustapha Kabil and Samih Lazaiz: A common fixed point theorem for a commuting family of G-strictly type monotone mappings in function modular space.
11:45 - 12:00	Mohammed Kaid: Équations Différentielles Fractionnaires de Sturm-Liouville
12:00 - 12:15	Abdessamad Kamouss, Mustapha Kabil and Karim Chaira: Convergence Comparison of Approximating Fixed Point Schemes
12:15 - 12:30	Abdelkarim Kari, El Miloudi Marhrani and Mohamed Aamri: A generalization of fixed point theorems in generalized metric spaces
12:30 - 12:45	Mustapha SABIRI, Jamal MOULINE and Abdelhafid BASSOU: p-cyclic contraction best proximity point
12:45 - 13:00	Ahmed Roubi, Karima Boufi and Mostafa El Haffari: Optimality Conditions and DC Method of Centers for Minimax DC Fractional Programs
<b>Lunch (13:00 - 15:00)</b>	
15:00 - 15:15	Abdellah Akrym, Abdeslam Elbakkali and Abdelkhalek Faouzi: A Note About the Strong Kreiss Resolvent Condition
15:15 - 15:30	Otmane Benchiheb and Mohamed Amouch: Recurrence of sets of operators and application
15:30 - 15:45	Omar Benslimane, Ahmed Aberqi and Jaouad Bennouna: Existence Of Solution Of Dirichlet Problems In Markinkiewicz Space
15:45 - 16:00	Issam Dali, Mohamed Laghdir and Mohamed Bilal Moustaid: Sequential formulae for e-subdifferential of multi-composed functions via perturbation approach with application to facility location problems
16:00 - 16:15	Noureddine Karim and Mohammed Amouch: Quasi-periodicity of operators
16:15 - 16:30	Mohamed Laghdir: Calculus rules of generalized proper $\eta$ -subdifferential for vector valued mappings and applications
16:30 - 16:45	Hamza Lakrimi and Mohamed Amouch: Supercyclicity and recurrence of elementary operators on Banach ideal of operators
16:45 - 17:00	Mohamed Bilal Moustaid, Mohamed Laghdir and Issam Dali: Sequential proper efficiency optimality conditions for multiobjective fractional programming problems
17:00 - 17:15	Noureddine Sabiri and Mohamed Guessous: A New Version of Komlós' Theorem in $L_1(\mu, X)$
17:15 - 17:30	Mansouria Saidani and Benharrat Belaïdi: Some Results on the Growth of Solutions to Higher Order Linear Differential Equations

# Session IV: Ordinary and Partial Differential Equations & Linear Algebra

Chairmen: EL MUSTAPHA AIT BEN HASSI - MAHMOUD BAROUN - SAID BOULITE - MOHAMED EL HARAMI - LAHCEN MANIAR

09:00 - 09:30	<p style="text-align: center;"><b>Conference n°④: AZIZ OUHINOU</b>  <b>UNIVERSITY OF SULTAN MOULAY SLIMANE   MOROCCO</b>  <b>MATHEMATICAL MODELS IN EPIDEMIOLOGY</b></p>
09:30 - 09:45	Mustapha Ait Hammou, Elhoussine Azroul and Badr Lahmi: An existence result for a strongly nonlinear parabolic equations with variable nonlinearity
09:45 - 10:00	Abdelouahed Alla Hamou, Elhoussine Azroul and Abdelilah Lamrani Alaoui: On the Existence of Extremal Weak Periodic Solutions For a Class of Nonlinear Fractional Parabolic Differential Equations
10:00 - 10:15	Zohra Bouteffal, Sara Litimein and Mouffak Benchohra: Measure of Noncompactness and Fractional Integro-differential Equations With State-Dependent Non-local Conditions in Fréchet Spaces
10:15 - 10:30	Mohammed Kriche, Abdelhai Elazzouzi and Khalil Ezzinbi: Periodic Solution for Some Classes of Partial Differential Equation using semi-Fredholm Operator
10:30 - 10:45	Chorouk Masnaoui: Étude d'un problème d'optimisation de forme
10:45 - 11:00	Nawel Abdesselam: Stabilization of Schrödinger equation with constants coefficients and dynamic limit condition
<b>Coffee break (11:00 - 11:30)</b>	
11:30 - 11:45	Melouka Remil: Existence and energy decay of solutions for a nonlinear wave equation with a constant weak delay and a logarithmic nonlinearity
11:45 - 12:00	Abdelali Sabri, Ahmed Jamea and Hamad Talibi Alaoui: Entropy solutions for nonlinear degenerate elliptic problem in weighted Sobolev spaces
12:00 - 12:15	Seddik Abdelalim: Construction of a strongly co-hopfian Abelian Which the torsion part isn't strongly co-hopfian
12:15 - 12:30	Edward Bankoussou-Mabiala: On the spectral reconstruction problem for digraphs
12:30 - 12:45	Abdekarim Boua: Prime near-rings and rings involving additive maps
12:45 - 13:00	Abderrahim Boussairi, Abdelhak Chaichaa and Imane Souktani: Characterization of (n-2)-spectrally monomorphic (0,1)-tournaments
13:00 - 13:15	Mohamed Zaidi, Abderrahim Boussaïri, Brahim Chergui and Pierre Ille: Realizability, primality and criticality of Hypergraphs

Friday July 17, 2020

## Session V: Probability & Statistics and Stochastic Analysis

Chairmen: NACEUR ACHTAICH - LAHCEN AZRAR -  
HICHAM EL BOUANANI - ABDELAZIZ EZZIANI - MEHDI ZAHID

09:00 - 09:30	<b>Conference n°5: CHAOUKI AOUTI</b> <b>UNIVERSITY OF CARTHAGE   TUNISIA</b> <b><i>INTRODUCTION AUX RESEAUX DE NEURONES RÉCURRENTS</i></b>
09:30 - 09:45	Younes Abrouki, Abdelkader Anouzla, Abderrahim Hatib and Hayat Loukili: Application de l'analyse en composantes principales à l'étude de l'impact de la pollution atmosphérique sur la santé des nourrissons de la ville de Casablanca
09:45 - 10:00	Abderrahim Aslimani: Limit theorem and law of the iterated logarithm of some additive functionals of some self-similar Gaussian processes
10:00 - 10:15	Mohammed Barmaki: Amenability of sofic groups using return probability
10:15 - 10:30	El Hassan Lakhel and Youssef Benkabdi: Retarded stochastic partial functional integro-differential equations driven by Rosenblatt process
10:30 - 10:45	Zouhair El Hadri and M'Barek Iaousse: An Alternative Least-Square Procedure to Estimate a Recursive Path Model using the Finite Iterative Method
10:45 - 11:00	Adil EZ-ZETOUNI, Mehdi ZAHID and Khadija Akdim: On the numerical solution of fractional stochastic differential equations
<b>Coffee break (11:00 - 11:30)</b>	
11:30 - 11:45	Raby Guerbaz and Khalid Chokri: Tail probability for local times of Subordinated-Gaussian processes
11:45 - 12:00	Abdelmounaim Kerkri: Cross validation vs generalized cross validation in PLS regression: a comparison by simulation
12:00 - 12:15	Labair Abdelkader: Théorie des sentiers rugueux et cohomologie de Hochschild
12:15 - 12:30	My Ismail Mamouni: The topology of cosmic radiation
12:30 - 12:45	M'Barek Iaousse, Amal Hmimou, Zouhair Elhadri and Mohammed Yousfi El Kettani: A New Algorithm for the Computation of the Covariance Matrix Implied by a Structural Recursive Model using the Finite Iterative Method
12:45 - 13:00	Meryem Slaoui: Generalized k-variations and Hurst parameter estimation for the fractional wave equation via Malliavin calculus

# Session VI: Applied Mathematics to Economics and Finance Mathematics

**Chairmen: JAMAL BOUYAGHROUMNI - MOHAMED EL HIA - SARA EL OUADI - RABY GUERBAZ - MOSTAPHA RACHIK**

09:00 - 09:30	<b>Conference n°⑥: YASSINE EL QALLI</b> <b>NATIONAL INSTITUTE OF STATISTICS AND APPLIED ECONOMICS   MOROCCO</b> <b><i>LES MATHEMATIQUES ET LE MONDE FINANCIER, QUELS LIENS?</i></b>
09:30 - 09:45	Mohammed Alami Chentoufi and Zari Tarek: La modélisation économétrique de l'effet de l'éthique sur la performance financière des entreprises marocaines
09:45 - 10:00	Ghassane Benrhmach, Abdlwahed Namir and Jamal Bouyaghroumni: USING WAVELET TRANSFORM AND NEURAL NETWORK FOR FORECASTING TIME SERIES
10:00 - 10:15	Hamza Bouhali and Mohammed Salah Chiadmi: Does more flexibility impact interdependence to EUR/USD? Empirical evidence from Morocco
10:15 - 10:30	Ahmed Dahbani and Mohammed Salah Chiadmi: Impact of the flexible exchange rate regime on the misalignment of Moroccan dirham
10:30 - 10:45	Haddari Alla Eddine and Remita Mohamed Riad: Application de la méthode de l'entropie maximale pour obtenir des primes de crédibilité
<b>Coffee break (10:45 - 11:30)</b>	
11:30 - 11:45	Asmaa Idmbarek, Yamna Achik, Hajar Nafia, Imane Agmour and Youssef El foutayeni: Maximising the utility function for switching-prey model
11:45 - 12:00	Mostafa Khabouze and Abdellah Abarda: Machine Learning Applications in E-Commerce
12:00 - 12:15	Ali Labriji, Abdelkrim Bennar and Mostafa Rachik: estimation of the impact of systemic risk on stock market equity return using stochastic approximation
12:15 - 12:30	Hajar Nafia, Yamna Achik, Imane Agmour, Asmaa Idmbarek, Naceur Achtaich and Youssef El foutayeni: Modèle d'Evaluation d'Options Américaines. Application aux Options Pétrolières
12:30 - 12:45	Mami Tawfiq Fawzi: Estimation de l'espérance conditionnelle de queue pour un processus Lévy stable

**Saturday July 18, 2020**

**Session VII: Biomathematics**

**Chairmen: MOHAMED BAHADI - KHALID HATTAF -  
MOHAMED KHALADI - REDOUANE QESMI - NORA YOUSFI**

09:00 - 09:30	<b>Conference n°⑦: ALI MOUSSAOUI</b> <b>FACULTY OF SCIENCES UNIVERSITY OF TLEMCEM   ALGERIA</b> <b>MATHEMATIQUES ET DYNAMIQUE DES POPULATIONS</b>
09:30 - 09:45	Abdelhadi Abta, Salahaddine Boutayeb, Hassan Laarabi and Mostafa Rachik: Stability analysis of a delayed sir epidemic model with diffusion and saturated incidence rate
09:45 - 10:00	Imane Agmour, Meriem Bentounsi, Noussaiba Baba, Naceur Achtaich and Youssef El foutayeni: Mathematical modeling of fishing bioeconomic model including wind speed effects
10:00 - 10:15	Noussaiba Baba, Imane Agmour, Youssef El foutayeni and Naceur Achtaich: The mathematical study for mortality coefficients of small pelagic species
10:15 - 10:30	Moussa Bachraoui, Khalid Hattaf and Noura Yousfi: Optimal control of a fractional-order HBV infection model with capsids and CTL immune
10:30 - 10:45	Fatima Ezzahra BEN DAHOU and Youssef EL FOUTAYENI: L'impact de la variation du prix de deux espèces marines sur l'effort de pêche, les captures et le profit
10:45 - 11:00	Meriem Bentounsi, Imane Agmour, Naceur Achtaich and Youssef El foutayeni: Mathematical modelling of planktonic organisms
11:00 - 11:15	Hajar Bebassi, Khalid Hattaf and Noura Yousfi: Dynamics of a delayed CHIKV infection model with cell-to-cell transmission
<b>Coffee break (11:15 - 11:30)</b>	
11:30 - 11:45	Ismail El Hakki, Rachid Mchich and Najib Charouki: Modeling and analysis of the stability of a bioeconomic model in fisheries
11:45 - 12:00	Mohamed El Hia, Mohamed Essabre and Mostafa Rachik: Observateur pour une classe de systèmes épidémiologiques implicites
12:00 - 12:15	Zineb El Rhoubari, Khalid Hattaf and Noura Yousfi: Optimal control of an Ebola Virus Disease model with post-death transmission
12:15 - 12:30	Majda El Younoussi, Khalid Hattaf and Noura Yousfi: A delayed oncolytic virotherapy model with Hattaf-Yousfi functional response.
12:30 - 12:45	Zakaria Hajhouji, Khalid Hattaf and Noura Yousfi: A numerical scheme for an HBV infection model with multi-delays and capsids
12:45 - 13:00	Chaimaa Riahi and Youssef El foutayeni: Optimization of the two Fishermen's Profits Exploiting Three Competing Species
13:00 - 13:15	Isma Younes: Équations différentielles à retard et applications
13:15 - 13:30	Soukaina Ben Rhila and Mustafa Rachik: Optimal control problem of a tuberculosis model with spatial dynamics

## Session VIII: Computer Science

Chairmen: ABDESSAMAD BELANGOUR - SAID NOUH -  
ABDELOUHED NAMIR - ABDELALI ZAKRANI

09:00 - 09:30	<b>Conference n°⑧: ZINEB RACHIK</b> <b>ECOLE HASSANIA DES TRAVAUX PUBLICS   MAROC</b> <b>SOA CONTEXTUELLE: SELECTION ET ADAPTATION DYNAMIQUE DES SERVICES</b>
09:30 - 09:45	Hicham Ait el bour, Yassine El Ghoumari and Mohamed Azzouazi: Amélioration du modèle de prédiction de crime par regroupement des types de crime
09:45 - 10:00	Safia Baali, Hicham Moutachaouik and Abdelaziz Marzak: Toward a Recommendation System for Human Resources
10:00 - 10:15	Belasla El Mehdi: Urbanisation Des Systèmes d'Information Des administrations publiques au Maroc (2010-2020) : étude et analyse de leur performance.
10:15 - 10:30	Chemesse Ennehar Bencheriet: Detection and monitoring of vehicles for road safety
10:30 - 10:45	Fatima Zohra Benkaddour, Noria Taghezout and Chahinez Guechache: A trust-based communities for collaborative filtering recommendation
10:45 - 11:00	Bentaib Mohssine, Mohammed Aitdaoud, Khalil Namir and Mohammed Talbi: Adaptive Help System Based on Learners' Digital Traces and Learning Styles in the ILE

### Coffee break (11:00 - 11:30)

11:30 - 11:45	Kadda Benyahia, Mahammed Nadir and Mahmoud Fahsi: L'ADN pour Sécuriser un Environnement IoT
11:45 - 12:00	Had Ahmed Bouarara: Convolutional Neural Network and Analysing the Variations in the Blood Flow of a Face in a Video to Detect DeepFake
12:00 - 12:15	Chaimae Boulahia, Hicham Behja and Mohamed Reda Chbihi Louhdi: A survey of RDF querying approaches in a Big Data world
12:15 - 12:30	Boulchahoub Hassan, Labriji Amine, Hicham Gourram, Zineb Rachik and El Houssine Labriji: EXTRACTING TEXT FROM IMAGES ACCORDING TO A DEFINED REGULAR EXPRESSION
12:30 - 12:45	Dabachine Yassine, Taheri Hamza, Biniz Mohamed, Bouikhalene Belaid and Balouki Abdessamad: Algorithm for conflict detection and resolution in ground mouvement
12:45 - 13:00	Abdelileh Dafrane and Sofia Doua: Improved image edge detection using an approach based on quadtree decomposition

## Session IX: Computer Science

Chairmen: MOHAMED AZOUAZI - KHADIJA ACHTAICH -  
HABIB BENLAHMAR - KHALIFA MANSOURI

09:00 - 09:30	<b>Conference n°8: ZINEB RACHIK</b> <b>ECOLE HASSANIA DES TRAVAUX PUBLICS   MAROC</b> <b>SOA CONTEXTUELLE: SELECTION ET ADAPTATION DYNAMIQUE DES SERVICES</b>
09:30 - 09:45	Sofia Douada and Chaimaa Chaoura: A fast fractal image encoding based on a new genetic algorithm
09:45 - 10:00	Othman El Harrak and Jaber El Bouhdidi: MOOC Video Classification using Nature Language Processing and Machine Learning Model
10:00 - 10:15	Loubna Elhaloui, Sanaa Elfilali and Habib Benlahmer: Towards an Smart Home architecture based on the Internet of Things
10:15 - 10:30	Samir Elouaham, Azzedine Dliou, Mastapha Laaboubi, Rachid Latif and Ahmed Chtouki: Denoising Electroencephalogram Signal Using Complete Ensemble Empirical Mode Decomposition
10:30 - 10:45	Naoufal Er-Raji and Faouzia Benabbou: The Dark Web: Stat of Art
10:45 - 11:00	Hadj Gharib, Abdelkader Khobzaoui and Rak Sayah: Blockchain and collective self-consumption

### Coffee break (11:00 - 11:30)

11:30 - 11:45	Hicham Gourram, El Houssine Labriji and Mostapha Rachik: the intelligent search engine backtracking algorithm
11:45 - 12:00	Hammou Djalal Rafik and Mechab Boubaker: Image Classification For Multimodal Biometrics Recognition System (Face And Finger Print) using Deep Learning
12:00 - 12:15	Ibrahim Hamzane and Abdessamad Belangour: Proposition d'un métamodèle de la méthodologie PRINCE 2
12:15 - 12:30	Ihya Rachida, Abdelwahed Namir, Mohammed Aitdaoud, Fatima-Zahra Guerss and Sanaa El Filali: A comparative study of E-orientation platforms according to extended TAM
12:30 - 12:45	Rachid Kaleche, Zakaria Bendaoud and Karim Bouamrane: Bio-Inspired Algorithms: A brief state of art
12:45 - 13:00	Hajar Lagraini: LEVEL-CROSSED: A SOLUTION FOR ENERGY SAVING IN WIRELESS SENSOR NETWORKS

## Session X: Computer Science

Chairmen: FOUZIA BENABBOU - HASSAN LABRIJI -  
CHAABANE LAMICHE - NAWAL SAEL

09:00 - 09:30	<b>Conference n°⑧: ZINEB RACHIK</b> <b>ECOLE HASSANIA DES TRAVAUX PUBLICS   MAROC</b> <b>SOA CONTEXTUELLE: SELECTION ET ADAPTATION DYNAMIQUE DES SERVICES</b>
09:30 - 09:45	Fatma LITIMEIN, Dalila MEKAM and Dalila MESRI: First Principles Investigation of The Elastic, Optoelectronic and Magnetic Properties of New Half-Heusler Compounds Using The mBJ Exchange Potential
09:45 - 10:00	Imane Lmati: La remédiation par groupe dans le cadre de la pédagogie différenciée : Cas des mathématiques
10:00 - 10:15	Nadir Mahammed, Souad Bennabi and Fahsi Mahmoud: Solving an Evolutionary Business Process Optimization Issue with a Multiple-Population Genetic Algorithm
10:15 - 10:30	Khaoula Marhane: Gestion budgétaire : stratégie d'aide à la décision et recommandation pour les universités marocaines
10:30 - 10:45	Houcine Matallah, Ghalem Belalem and Karim Bouamrane: Etude comparative des bases de données NoSQL: MongoDB, Cassandra, HBase, Redis, Couchbase, OrientDB
10:45 - 11:00	Driss Mhamdi, Mohamed Azouazi, Reda Moulouki and Mohammed Yassine El Ghoumari: Recommendation using job profile analysis
<b>Coffee break (11:00 - 11:15)</b>	
11:15 - 11:30	Khalil NAMIR, Ibtissam M'RHAOUARH and Abdelwahed NAMIR: Contribution à la meilleure décision instantanée de la gestion des stocks
11:30 - 11:45	Nabil Neggaz, Redouane Tlemsani and Fatma A. Hashim: Arabic Sentiment Analysis using Grey Wolf Optimizer based on Feature Selection
11:45 - 12:00	Kamal Omari, Said Harchi, Lynda Ouchaouka, Mohamed Moussetad and El Houssine Labriji: Proposal for a new tool to evaluate a serious game
12:00 - 12:15	Youssef Ouassit, Soufiane Ardchir, Mohammed Yassine El Ghoumari and Mohamed Azzouazi: Liver Segmentation: A Capsule Based Network
12:15 - 12:30	Soumaya Ounacer, Sara Lbazi and Mohamed Azouazi: Application de la technique forêt d'isolement pour la détection de fraude par carte de crédit
12:30 - 12:45	Nawal Sad Houari, Noria Taghezout and Aomar Boumrar: A knowledge based decision support system for geological follow-up of petroleum drilling
12:45 - 13:00	Imane Sadgali, Nawal Sael and Faouzia Benabbou: Etat d'art des techniques d'analyse de comportement client pour la détection de fraude par carte de crédit