

## PROGRAM AT A GLANCE

### Day 1

| Day 1: Tuesday 11, July 2023 |                                                                                                                                                                                                                                                                     |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| 8h00 – 8h45                  | Welcome & Registration 1 (Main hall)                                                                                                                                                                                                                                |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
| 8h45 – 10h00                 | Opening Ceremony (Amphitheater)                                                                                                                                                                                                                                     |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
|                              | Welcome Coffee (Main hall)                                                                                                                                                                                                                                          |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
| 10h00 – 10h40                | <p>Keynote 1 (Amphitheater)</p> <p><b>Electrical and Biological Microgrids- Taking inspiration from Neuroscience</b></p> <p><b>Prof. Josep M. GUERRERO</b></p> <p><b>Aalborg University, Denmark</b></p> <p>Plenary session chair : <b>Prof. Soumia El Hani</b></p> |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
| 10h40 – 11h20                | <p>Keynote 2 (Amphitheater)</p> <p><b>Energy Storage Optimization using different control strategies</b></p> <p><b>Prof. William HOLDERBAUM</b></p> <p><b>University of Reading, Whiteknights, UK</b></p> <p>Plenary session chair: <b>Prof. Quanmin Zhu</b></p>    |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
| 11h20 – 12h50                | Regular Sessions I (Room 1 to 5)                                                                                                                                                                                                                                    |                                                                                               |                                                                                             |                                                                                      |                                                                                              |
|                              | <b>TuM1</b>                                                                                                                                                                                                                                                         | <b>TuM2</b>                                                                                   | <b>TuM3</b>                                                                                 | <b>TuM4</b>                                                                          | <b>TuM5</b>                                                                                  |
|                              | <i>Photo-Voltaic System Control</i>                                                                                                                                                                                                                                 | <i>Distributed Energy Systems and Microgrid</i>                                               | <i>Neuro-Fuzzy Modelling and Control</i>                                                    | <i>Nonlinear Control of DC-DC Power Converters</i>                                   | <i>Energy Conversion and Communication Systems in Electrical Vehicles</i>                    |
|                              | <p>Session chairs</p> <p><b>Prof. Hassan Mharzi</b></p> <p><b>Prof. Abdelhafid Yahya</b></p>                                                                                                                                                                        | <p>Session chairs</p> <p><b>Prof. Abdelmajid Abouloifa</b></p> <p><b>Prof. Wiam Ayrir</b></p> | <p>Session chairs</p> <p><b>Prof. Ahmed Essadki</b></p> <p><b>Prof. Ibtiham Lachkar</b></p> | <p>Session chairs</p> <p><b>Prof. Qiang Chen</b></p> <p><b>Prof. Ahmed Abbou</b></p> | <p>Session chairs</p> <p><b>Prof. Ali Haddi</b></p> <p><b>Prof. Abderrahim El fadili</b></p> |

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| 13h00 – 14h30 | <b>Lunch Break (Main hall)</b>                                                                                                                                                                                                                                                           |                                                                                    |                                                                                              |                                                                                            |                                                                                      |
| 14h30 – 15h10 | <b>Keynote 3 (Amphitheater)</b><br><b>On the Stability and Convergence of Adaptive Control Systems - Virtual Equivalent System Theory</b><br><b>Prof. Weicun ZHANG</b><br><i>University of Science and Technology Beijing, China</i><br>Plenary session chair: <b>Prof. Feng Ding</b>    |                                                                                    |                                                                                              |                                                                                            |                                                                                      |
| 15h10 – 15h50 | <b>Keynote 4 (Amphitheater)</b><br><b>Recent advances in modeling and control of power converters in distributed power systems</b><br><b>Prof. Abdelali EL AROUDI</b><br><i>Universitat Rovira i Virgili, Tarragona, SPAIN</i><br>Plenary session chair: <b>Prof. William Holderbaum</b> |                                                                                    |                                                                                              |                                                                                            |                                                                                      |
| 15h50 – 16h20 | <b>Coffee Break (Main hall)</b>                                                                                                                                                                                                                                                          |                                                                                    |                                                                                              |                                                                                            |                                                                                      |
| 16h20 – 17h50 | <b>Regular Sessions II (Room 1 to 5)</b>                                                                                                                                                                                                                                                 |                                                                                    |                                                                                              |                                                                                            |                                                                                      |
|               | <b>TuA1</b>                                                                                                                                                                                                                                                                              | <b>TuA2</b>                                                                        | <b>TuA3</b>                                                                                  | <b>TuA4</b>                                                                                | <b>TuA5</b>                                                                          |
|               | <i>Unmanned Aerial Vehicle Modelling and Control</i>                                                                                                                                                                                                                                     | <i>Advanced Control of Electrical Systems</i>                                      | <i>State Estimation and Observers for Electromechanical Systems</i>                          | <i>Learning and Optimization Algorithm Applications</i>                                    | <i>Machine Learning Applications</i>                                                 |
|               | <b>Session chairs</b><br><b>Prof. Yue Ma</b><br><b>Prof. Lamiaa El Menzhi</b>                                                                                                                                                                                                            | <b>Session chairs</b><br><b>Prof. El Ayachi Chater</b><br><b>Prof. Leila Ammeh</b> | <b>Session chairs</b><br><b>Prof. Abdelmounime El Magri</b><br><b>Prof. Mostapha Oulcaid</b> | <b>Session chairs</b><br><b>Prof. Abdessalem Ait Madi</b><br><b>Prof. Abderrahim Bajit</b> | <b>Session chairs</b><br><b>Prof. Younes Zouine</b><br><b>Prof. Ouadoudi Zytoune</b> |

## PROGRAM AT A GLANCE

### Day 2

| Day 2: Wednesday 12, July 2023 |                                                                                                                                                                                                                                                                                                       |                                                                                     |                                                                                      |                                                                             |                                                                                  |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 8h00 – 8h30                    | Welcome & Registration 2 (Main hall)                                                                                                                                                                                                                                                                  |                                                                                     |                                                                                      |                                                                             |                                                                                  |
| 8h30 – 10h00                   | Regular Session III (Room 1 to 5)                                                                                                                                                                                                                                                                     |                                                                                     |                                                                                      |                                                                             |                                                                                  |
|                                | WeM1                                                                                                                                                                                                                                                                                                  | WeM2                                                                                | WeM3                                                                                 | WeM4                                                                        | WeM5                                                                             |
|                                | <i>Nonlinear Control of Energy Conversion Systems</i>                                                                                                                                                                                                                                                 | <i>Signal and Image Processing, and Sensors</i>                                     | <i>Energy Efficiency and Sustainability</i>                                          | <i>Model Predictive Control</i>                                             | <i>Modeling and Parameter Identification</i>                                     |
|                                | <i>Session chairs</i><br><i>Prof. Abdelali El Aroudi</i><br><i>Prof. Rachid El Bouayadi</i>                                                                                                                                                                                                           | <i>Session chairs</i><br><i>Prof. Ouadoudi Zytoune</i><br><i>Prof. Zhour Madini</i> | <i>Session chairs</i><br><i>Prof. Ahmed Ait Errouhi</i><br><i>Prof. Aouatif Saad</i> | <i>Session chairs</i><br><i>Prof. Aziz Rachid Prof. Elhoussaine Ouabida</i> | <i>Session chairs</i><br><i>Prof. Abdessamad Naitali</i><br><i>Prof. Ling Xu</i> |
| 10h00 – 10h40                  | <b>Keynote 5 (Amphitheater)</b><br><b>Universal (U)-control systems – a platform from model-based to model-free</b><br><b>Prof. Quanmin ZHU</b><br><b>University of the West of England, UK</b><br>Plenary session chair : <b>Prof. Weicun Zhang</b>                                                  |                                                                                     |                                                                                      |                                                                             |                                                                                  |
| 10h40 – 11h10                  | Coffee Break (Main hall)                                                                                                                                                                                                                                                                              |                                                                                     |                                                                                      |                                                                             |                                                                                  |
| 11h10 – 11h50                  | <b>Keynote 6 (Amphitheater)</b><br><b>New Idea, Theory, Principle and Methods for System Identification</b><br><b>Prof. Feng DING</b><br><b>Jiangnan University, Wuxi, China</b><br>Plenary session chair : <b>Prof. Abdelali El Aroudi</b>                                                           |                                                                                     |                                                                                      |                                                                             |                                                                                  |
| 11h50 – 12h30                  | <b>Keynote 7 (Amphitheater)</b><br><b>Hierarchical Distributed Energy Management Framework for Multiple Greenhouses Considering Demand Response</b><br><b>Prof. Hanane Dagdougui</b><br><b>Polytechnique Montreal, Montreal, QC, Canada</b><br>Plenary session chair : <b>Prof. Josep M. Guerrero</b> |                                                                                     |                                                                                      |                                                                             |                                                                                  |

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| 12h30 – 13h10 | <p><b>Keynote 8 (Amphitheater)</b></p> <p><b>Model predictive control for optimal energy management of connected cluster of microgrids with net zero energy multi-greenhouses</b></p> <p><b>Prof. Ahmed Ouammi</b></p> <p><b>School of Higher Technology, University of Quebec [ETS], Montreal, Canada</b></p> <p><b>Plenary session chair : Prof. Driss Zejli</b></p> |
| 13h10 – 13h40 | <p><b>Closing Ceremony (Amphitheater)</b></p>                                                                                                                                                                                                                                                                                                                          |
| 14h00 – 15h30 | <p><b>Lunch Break (Main Hall)</b></p>                                                                                                                                                                                                                                                                                                                                  |
| 16h30 – 20h00 | <p><b>A special touristic trip for international participants</b></p>                                                                                                                                                                                                                                                                                                  |

## REGULAR SESSIONS PROGRAM

### TUESDAY Morning Session Content

| TuM1                 | July 11, 2023                                                                                                                                                                                                                                                                | Room 1 |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic                | Photo-Voltaic System Control                                                                                                                                                                                                                                                 |        |
| Session chairs       | <b>Prof. Hassan Mharzi</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                                                                 |        |
|                      | <b>Prof. Abdelhafid Yahya</b><br><b>Moulay Ismail University, Meknes, Morocco</b>                                                                                                                                                                                            |        |
| <b>11h20 – 11h35</b> | <b>Nonlinear Control of Three Phase Single Stage Grid Connected PV System through Half Bridge Power Inverter</b><br><i>Nouhaila Hourri, Abdelmajid Abouloifa, Zineb Hekss, Ibtissam Lachkar, Ouijdane Arich and Amine El Boudali</i>                                         |        |
| <b>11h35 – 11h50</b> | <b>Global MPP tracking under partial shading conditions using LandS algorithm: hardware implementation</b><br><i>Mostapha Oulcaid, El Mehdi Acim, Nabil Hmina, Hassan El Fadil and Aziz Rachid</i>                                                                           |        |
| <b>11h50 – 12h05</b> | <b>Linear control approach of PV-fed grid-tied dual boost inverter</b><br><i>Boujemaa Tighazouane, Ibtissam Lachkar, Abdelmajid Abouloifa, Chaouqi Aouadi and Meriem Aourir</i>                                                                                              |        |
| <b>12h05 – 12h20</b> | <b>Robust Nonlinear Controller Design for Zeta converter based Off-Grid solar energy with Battery-Storage System</b><br><i>Hassan Ouabi, Rachid Lajouad, Mohammed Kissaoui, Abdelmounime El Magri, Aziz Watil, Ilyass El Myasse, Abdelfattah El Azzab and Karim El Mezdi</i> |        |
| <b>12h20 – 12h35</b> | <b>Backstepping-based Control of a PV Inverter in Islanded Mode</b><br><i>Abdelaziz Kabba, Hassan El Fadil, Abdellah Lassioui, Zakariae El Idrissi, Soukaina Nady, Yassine Ait Jillali and Halima Housny</i>                                                                 |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Morning Session Content

| TuM2                  | July 11, 2023                                                                                                                                                                                                                  | Room 2 |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>Topic</b>          | <b>Distributed Energy Systems and Microgrid</b>                                                                                                                                                                                |        |
| <b>Session chairs</b> | <b>Prof. Abdelmajid Abouloifa</b><br><b>Hassan II University, Casablanca, Morocco</b>                                                                                                                                          |        |
|                       | <b>Prof. Wiam Ayrir</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                      |        |
| <b>11h20 – 11h35</b>  | <b>Off-Grid Renewable Energy Systems of the Gym By Using a Hybrid System</b><br><i>Abdelfattah El Azzab, Abdelmounime El Magri, Rachid Lajouad, Ilyass El Myasse, Aziz Watil and Hassan Ouabi</i>                              |        |
| <b>11h35 – 11h50</b>  | <b>Capacity optimization of wind-solar-biogas-storage distributed energy system</b><br><i>Juan Wang, Sirui Wang, Shuaidong Zhu and Zhi-E Lou</i>                                                                               |        |
| <b>11h50 – 12h05</b>  | <b>Operational consumption planning in a hybrid LV microgrid; Comparison between TFWO and MAS optimization</b><br><i>Doha El Hafiane, Abdelmounime El Magri, Houssam Eddine Chakir, Rachid Lajouad and Soukaina Boudoudouh</i> |        |
| <b>12h05 – 12h20</b>  | <b>Analysis of wind speed data using Weibull distribution in KENITRA Morocco</b><br><i>Redwane Hizoune, Hassan El Fadil, Mohamed Koundi and Oumaima Choukai</i>                                                                |        |
| <b>12h20 – 12h35</b>  | <b>Optimal Design of a PV-Wind-hybrid energy system for residential area under Oualidia climates</b><br><i>Tarik Aissi, Khalid Kandoussi, Younes Abouelmahjoub, Rabie Elotmani and Mohamed Louzazni</i>                        |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Morning Session Content

| TuM3           | July 11, 2023                                                                                                                                                                                                                         | Room 3 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic          | Neuro-Fuzzy Modelling and Control                                                                                                                                                                                                     |        |
| Session chairs | <b>Prof. Ahmed Essadki</b><br><b>Mohammed V University, Rabat, Morocco</b>                                                                                                                                                            |        |
|                | <b>Prof. Ibissam Lachkar</b><br><b>Hassan II University, Casablanca, Morocco</b>                                                                                                                                                      |        |
| 11h20 – 11h35  | <b>Hybrid Automaton-Fuzzy Control of Three-Phase Four-Wire Shunt Active Power Filter with split capacitor</b><br><i>Khadija Naftahi, Abdelmajid Abouloifa, Zineb Hekss, Salwa Echalih and Fatima Ait Bellah</i>                       |        |
| 11h35 – 11h50  | <b>Cruise control system of electric vehicle powered by PMSM motor using T-S fuzzy approach.</b><br><i>Elhoussein Elouardi, Omar Mouhib, Abdellah Lassioui, Ahmed Bentaleb, Brahim El Ouardi and Hassan El Fadil</i>                  |        |
| 11h50 – 12h05  | <b>Instantaneous Vehicle Fuel Consumption Estimation Using Neural Networks</b><br><i>Idriss Mortabit, Aziz Rachid, Nidale Errifai, Seddik Khamlichi, Elhoussaine Saidi, Abdelilah El Mazouzi and Hassan El Fadil</i>                  |        |
| 12h05 – 12h20  | <b>ANN and Voltage-drop hybrid method for Fault location in Electrical Power Distribution Systems</b><br><i>Youssef Menchafou, Morad Aaboud and Hassane El Markhi</i>                                                                 |        |
| 12h20 – 12h35  | <b>Observer-based Controller Design for a Class of Discrete-Time Takagi-Sugeno Models: Application to One-Link Flexible Joint Robot</b><br><i>Boutayna Bentahra, Karim Bouassem, Abdellatif El Assoudi and El Hassane El Yaagoubi</i> |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Morning Session Content

| TuM4                 | July 11, 2023                                                                                                                                                                                                                                                                        | Room 4 |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic                | Nonlinear Control of DC-DC Power Converters                                                                                                                                                                                                                                          |        |
| Session chairs       | <b>Prof. Qiang Chen</b><br><b>Zhejiang University of Technology, China</b>                                                                                                                                                                                                           |        |
|                      | <b>Prof. Ahmed Abbou</b><br><b>Mohammed V University, Rabat, Morocco</b>                                                                                                                                                                                                             |        |
| <b>11h20 – 11h35</b> | <b>Nonlinear controller design for photovoltaic powered Single-Inductor Dual-Output boost DC-DC converter</b><br><i>Ouijdane Arich, Abdelmajid Abouloifa, Ibtissam Lachkar, Salwa Echalih, Meriem Aourir, Amine El Boudali and Nouhaila Hourri</i>                                   |        |
| <b>11h35 – 11h50</b> | <b>An Improved Nonlinear Control Design of a Grid-Connected Battery Storage System through a Bidirectional Vienna Converter</b><br><i>Nabil Elaadouli, Rachid Lajouad, Adil Mansouri, Abdelmounime El Magri, Ilyass El Myasse, Aziz Watil, Younes El Khlifi and Karim Elmezdi</i>    |        |
| <b>11h50 – 12h05</b> | <b>DC/DC Boost Converter-Based Emulation of a Proton Exchange Membrane Electrolyzer</b><br><i>Mohamed Koundi, Hassan El Fadil, Zakaria El Idrissi, Abdellah Lassioui, Issam Bentalhik, Soukaina Nady and Adil Hilmani</i>                                                            |        |
| <b>12h05 – 12h20</b> | <b>Control of Interleaved Dual Boost Converter for solar PV-Systems</b><br><i>Fatima Ait Bellah, Abdelmajid Abouloifa, Chaouqi Aouadi, Salwa Echalih, Khadija Neftahi, Meriem Aourir and Zineb Hekss</i>                                                                             |        |
| <b>12h20 – 12h35</b> | <b>Output Feedback controller based High-Order Sliding Mode control of DC-DC Boost Cascade Converter</b><br><i>Soukaina Nady, Hassan El Fadil, Zakariae El Idrissi, Abellah Lassioui, Abdelaziz Kabba, Mohamed Koundi, Abdessamad Intidam, Ahmed mohamed Hamed and Halima Housny</i> |        |



## REGULAR SESSIONS PROGRAM

### TUESDAY Morning Session Content

| TuM5                  | July 11, 2023                                                                                                                                                                                                                  | Room 5 |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>Topic</b>          | <b>Energy Conversion and Communication Systems in Electrical Vehicles</b>                                                                                                                                                      |        |
| <b>Session chairs</b> | <b>Prof. Ali Haddi</b><br><b>Abdelmalek Essaadi University, Tetouan, Morocco</b>                                                                                                                                               |        |
|                       | <b>Prof. Abderrahim El fadili</b><br><b>Hassan II University, Casablanca, Morocco</b>                                                                                                                                          |        |
| <b>11h20 – 11h35</b>  | <b>Integration of communication between EV and EVSE based on ISO 15118 with an OBD-II system</b><br><i>Oumaima Benzouina, Sidina El Jeilani, Hassan El Fadil, Halima Housny and Abdelaziz Kabba</i>                            |        |
| <b>11h35 – 11h50</b>  | <b>Optimization Techniques of Circular Pad Design for Efficient Wireless Charging of Electric Vehicles</b><br><i>Tasnime Bouanou, Hassan El Fadil, Abdellah Lassioui, Sidina El Jeilani, Ahmed Hamed and Aziz Rachid</i>       |        |
| <b>11h50 – 12h05</b>  | <b>Wireless Communication Systems Applied to EV Wireless Charger: State of the art</b><br><i>Sidina El Jeilani, Hassan El Fadil, Abdellah Lassioui, Tasnime Bouanou, Oumaima Benzouina, Halima Housny and Mustapha Oulcaid</i> |        |
| <b>12h05 – 12h20</b>  | <b>Modelling and super-twisting sliding mode control of a wireless power transfer charger</b><br><i>Ahmed Hamed, Hassan El Fadil, Abdellah Lassioui, Tasnime Bouanou, Sidina El Jeilani and Soukaina Nady</i>                  |        |
| <b>12h20 – 12h35</b>  | <b>Modelization of developed hybrid vehicle based on a fuel cell and a li-ion battery</b><br><i>Rachid Touileb, Ahmed Abbou, Sara Elbadaoui and Aziz Rachid</i>                                                                |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Afternoon Session Content

| TuA1           |                                                                                                                                                                                                      | July 11, 2023 | Room 1 |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| Topic          | Unmanned Aerial Vehicle Modelling and Control                                                                                                                                                        |               |        |
| Session chairs | <b>Prof. Yue Ma</b><br><b>Beijing Institute of Technology, China</b>                                                                                                                                 |               |        |
|                | <b>Prof. Lamiaa El Menzhi</b><br><b>Abdelmalek Essaadi University, Tetouan, Morocco</b>                                                                                                              |               |        |
| 16h20 – 16h35  | <b>UAV altitude estimation using Kalman Filter and Extended Kalman Filter</b><br><i>Asmaa Taame, Ibtissam Lachkar, Abdelmajid Abouloifa and Ismail Mouchrif</i>                                      |               |        |
| 16h35 – 16h50  | <b>An optical-flow-assisted navigation method for UAVs using Sage-Husa EKF</b><br><i>Ke Hu, Xueyong Wu, Huaxing Xu, Juan Li and Jie Li</i>                                                           |               |        |
| 16h50 – 17h05  | <b>ADRC control of an unmanned under-actuated aerial vehicle</b><br><i>Ismail Mouchrif, Ibtissam Lachkar, Abdelmajid Abouloifa and Asmaa Taame</i>                                                   |               |        |
| 17h05 – 17h20  | <b>Simultaneous Trajectory Tracking and Obstacle Avoidance of a UAV</b><br><i>Hongbao Du, Zhengjie Wang and Lixi Tang</i>                                                                            |               |        |
| 17h20 – 17h35  | <b>Passive flow control of flow around the entrance of small ducted aircraft</b><br><i>Yanxuan Wu, Haoran Yue and Wei Zhang</i>                                                                      |               |        |
| 17h35 – 17h50  | <b>The influence of the variable diameter rotor on the aerodynamic helicopter rotor performance</b><br><i>Soufiane Stouti, Assel Thami Lahlou, Ismail Lagrat, Hamid Mounir and Oussama Bouazaoui</i> |               |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Afternoon Session Content

| TuA2           |                                                                                                                                                                                                                                                               | July 11, 2023 | Room 2 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| Topic          | Advanced Control of Electrical Systems                                                                                                                                                                                                                        |               |        |
| Session chairs | Prof. El Ayachi Chater<br>Mohammed V University, Rabat, Morocco                                                                                                                                                                                               |               |        |
|                | Prof. Leila Ammeh<br>Ibn Tofail University, Kenitra, Morocco                                                                                                                                                                                                  |               |        |
| 16h20 – 16h35  | <b>Design and Validation of a Backstepping Controller for Energy Storage Systems in HEVs</b><br><i>Abdessamad Intidam, Hassan El Fadil, Zakariae El Idrissi, Abdellah Lassioui, Mohamed Koundi, Halima Housny and Soukaina Nady</i>                           |               |        |
| 16h35 – 16h50  | <b>Backstepping-based Control of Single-phase BEV charger in V2H application</b><br><i>Elhoussaine Saidi, Aziz Rachid, Idriss Mortabit, Nidale Errifai, Seddik Khamlichi, Hassan El Fadil and Ahmed Abbou</i>                                                 |               |        |
| 16h50 – 17h05  | <b>Comparative Study Between PI and Sliding Mode Control in NPC Inverter integrated into PV System</b><br><i>Sara Elbadaoui, Ahmed Abbou, Abdessamade Bouaddi, Rachid Touileb, Aziz Rachid and Yassine Zahraoui</i>                                           |               |        |
| 17h05 – 17h20  | <b>Nonlinear control for a single-phase grid connected wind energy system</b><br><i>Abdelmoghith Fathelkhair, Hassan Abouobaida, Youssef Mchaouar, Younes Abouelmahjoub, Dounia Elmesouli and Khadija Oualifi</i>                                             |               |        |
| 17h20 – 17h35  | <b>Control of Three-Phase Shunt Active Power Filter Based on Five-Level NPC Inverter</b><br><i>Oumaima Mikram, Abdelmajid Abouloifa, Ibtissam Lachkar, Meriem Aourir and Chaouqi Aouadi</i>                                                                   |               |        |
| 17h35 – 17h50  | <b>Nonlinear Control Design of Three Terminal HVDC Transmission Systems to Improve FRT Capability</b><br><i>Ilyass El Myasse, Abdelmounime El Magri, Mohammed Kissaoui, Aziz Watil, Rachid Lajouad, Abdelfattah El Azzab, Hassan Ouabi and Karim El Mezdi</i> |               |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Afternoon Session Content

| TuA3           |                                                                                                                                                                                                                                                 | July 11, 2023 | Room 3 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| Topic          | State Estimation and Observers for Electromechanical Systems                                                                                                                                                                                    |               |        |
| Session chairs | <b>Prof. Abdelmounime El Magri</b><br>Hassan II University, Casablanca, Morocco                                                                                                                                                                 |               |        |
|                | <b>Prof. Mostapha Oulcaïd</b><br>Sultan Moulay Slimane University, Beni Mellal, Morocco                                                                                                                                                         |               |        |
| 16h20 – 16h35  | <b>Combined Coulomb-Counting and Open Circuit Voltage Methods for State of Charge Estimation of Li-Ion Battery</b><br><i>Nidale Errifai, Aziz Rachid, Seddik Khamlichi, Elhoussaine Saidi, Idriss Mortabit, Hassan El Fadil and Ahmed Abbou</i> |               |        |
| 16h35 – 16h50  | <b>Electrically Heated Catalyst Temperature Tracking using Extended Kalman Filter based Super twisting Control</b><br><i>Nadia Landarouche and Mohammed Bakhti</i>                                                                              |               |        |
| 16h50 – 17h05  | <b>Enhancement of an electric vehicle's state of charge estimation using an extended Kalman filter</b><br><i>Anas El Maliki, Abdessamad Benlafkih, Kamal Anoune and Abdelkader Hadjoudja</i>                                                    |               |        |
| 17h05 – 17h20  | <b>Estimation of Lithium-Ion Battery State-of-Charge Using an Unscented Kalman Filter</b><br><i>Mouhssine Lagraoui and Ali Nejmi</i>                                                                                                            |               |        |
| 17h20 – 17h35  | <b>Extended Kalman Filter based Lateral Velocity and Yaw Rate Estimation for a Vehicle with Nonlinear Tire Model</b><br><i>Hamza Ben Moussa and Mohammed Bakhti</i>                                                                             |               |        |
| 17h35 – 17h50  | <b>On Existence and Design of Distributed Observer for Systems with Directed Communication</b><br><i>Shihang Li, Zhiheng Zhang, Qingqing Cao, Ye Chen, Peng Liu and Jianfeng Cui</i>                                                            |               |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Afternoon Session Content

| TuA4           |                                                                                                                                                                                                                              | July 11, 2023 | Room 4 |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| Topic          | Learning and Optimization Algorithm Applications                                                                                                                                                                             |               |        |
| Session chairs | <b>Prof. Abdessalem Ait Madi</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                           |               |        |
|                | <b>Prof. Abderrahim Bajit</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                              |               |        |
| 16h20 – 16h35  | <b>Enhancing CNN Architecture with Constrained NAS for Boat Detection in Aerial Images</b><br><i>Ilham Zerrouk, Younes Moumen, Ali El Habchi, Wassim Khiati, Jamal Berrich and Toumi Bouchentouf</i>                         |               |        |
| 16h35 – 16h50  | <b>A Novel Approach of Detecting Malicious Phishing URL Using Self-Organizing Map</b><br><i>Md Nazmus Sakib, Kazi Hassan Robin, Ayesha Sikkida and Shamsun Nahar</i>                                                         |               |        |
| 16h50 – 17h05  | <b>Critical Success Factors of Blockchain Implementation in the Automotive Supply Chain Management: Contribution through an Interpretive Structural Model</b><br><i>Bouchra Bouayad, Samah Elrhanimi and Laila El Abbadi</i> |               |        |
| 17h05 – 17h20  | <b>Exploring the IT's needs in Morocco Using Online Job ads</b><br><i>Khadija Sellamy, Mohamed I El Farouk, Zineb Sabri, Aniss Qostal, Hamza Nouib, Youssef Fakhri and Aniss Moumen</i>                                      |               |        |
| 17h20 – 17h35  | <b>Energy Harvesting Communication System Optimization based on Battery Leakage and rate Capacity</b><br><i>Omar Enassiri, Ouadoudi Zytoune and Wiam Ayirir</i>                                                              |               |        |

## REGULAR SESSIONS PROGRAM

### TUESDAY Afternoon Session Content

| TuA5                 |                                                                                                                                                                                                                                                | July 11, 2023 | Room 5 |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| Topic                | Machine Learning Applications                                                                                                                                                                                                                  |               |        |
| Session chairs       | <b>Prof. Younes Zouine</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                                   |               |        |
|                      | <b>Prof. Ouadoudi Zytoune</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                                |               |        |
| <b>16h20 – 16h35</b> | <b>The Electric Vehicle requested energy prediction using Machine Learning algorithms for the Demand Side Management</b><br><i>Ayoub Abida, Redouan Majdoul and Morad Zegrari</i>                                                              |               |        |
| <b>16h35 – 16h50</b> | <b>Deep learning for brain stroke disease management: A Mapping Study</b><br><i>Annas Barouhou, Laila Benhlma, Slimane Bah, Hajar Elmaghraoui, Oumaima Bel Moudden and Imane Jagour</i>                                                        |               |        |
| <b>16h50 – 17h05</b> | <b>Carbon Footprint: Machine Learning Models for Prediction of Missing Values</b><br><i>Mekki Youssef, Chouaib Moujahdi, Nouredine Assad and Aziz Dahbi</i>                                                                                    |               |        |
| <b>17h05 – 17h20</b> | <b>Speech enhancement based on the combination of deep learning and wavelet algorithm</b><br><i>Yue Li and Ji Qiu</i>                                                                                                                          |               |        |
| <b>17h20 – 17h35</b> | <b>Engineering Education using Serious Games: The Current State, Trends, and Future using a Bibliometric Study</b><br><i>Zineb Sabri, Ahmed Remaida, Abdellaoui Benyoussef, Aniss Qostal, Khadija Sellamy, Youssef Fakhri and Aniss Moumen</i> |               |        |

## REGULAR SESSIONS PROGRAM

### WEDNESDAY Morning Session Content

| WeM1                  | July 12, 2023                                                                                                                                                                                                                                                                      | Room 1 |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>Topic</b>          | <b>Nonlinear Control of Energy Conversion Systems</b>                                                                                                                                                                                                                              |        |
| <b>Session chairs</b> | <b>Prof. Abdelali El Aroudi</b><br><b>Universitat Rovira i Virgili, Tarragona, Spain</b>                                                                                                                                                                                           |        |
|                       | <b>Prof. Rachid El Bouayadi</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                                                                  |        |
| <b>08h30 – 08h45</b>  | <b>Fixed-time backstepping RLC of PMSM servo systems</b><br><i>Yaqian Li, Huihui Shi, Qiang Chen, Jing Na, Shubo Wang and Yimin Zhou</i>                                                                                                                                           |        |
| <b>08h45 – 09h00</b>  | <b>ADRC Control Of Cascaded H-Bridge Multilevel DC/AC Converters</b><br><i>Brahim Azaroual, Ibtissam Lachkar, Abdelmajid Abouloifa, Chaouqi Aouadi and Meriem Aourir</i>                                                                                                           |        |
| <b>09h00 – 09h15</b>  | <b>Comparative Study of Conventional Sliding Mode Control and Sliding Mode with Integral Action in an Electric Vehicle Charger Application</b><br><i>Khadija Oualifi, Hassan Abouobaida, Youssef Mchaouar, Younes Abouelmahjoub, Dounia Elmesouli and Abdelmoghith Fathelkhair</i> |        |
| <b>09h15 – 09h30</b>  | <b>Modeling and Control of Single-Phase Modular Multilevel Converter using Backstepping Approach</b><br><i>Amine El Boudali, Abdelmajid Abouloifa, Ibtissam Lachkar, Meriem Aourir, Chaouqi Aouadi, Oujidane Arich and Nouhaila Hourri</i>                                         |        |
| <b>09h30 – 09h45</b>  | <b>Nonlinear Control Design of MFCI for PMSG WECS with Low Voltage Ride-Through Enhancement</b><br><i>Younes El Khelifi, Abdelmounime El Magri, Adil Mansouri, Rachid Lajouad, Houssam Eddine Chakir and Nabil Elaadoui</i>                                                        |        |

## REGULAR SESSIONS PROGRAM

### WEDNESDAY Morning Session Content

| WeM2           | July 12, 2023                                                                                                                                                                                                                       | Room 2 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic          | Signal and Image Processing, and Sensors                                                                                                                                                                                            |        |
| Session chairs | Prof. Ouadoudi Zytoune<br>Ibn Tofail University, Kenitra, Morocco                                                                                                                                                                   |        |
|                | Prof. Zhou Madini<br>Ibn Tofail University, Kenitra, Morocco                                                                                                                                                                        |        |
| 08h30 – 08h45  | Automatic Anesthesia Telemonitoring & Control using Electroencephalogram and Bispectral Index (BIS)<br><i>Mohamed Touil, Lhoussain Bahatti and Abdelmounime El Magri</i>                                                            |        |
| 08h45 – 09h00  | A Hybrid Analysis Approach of Physiological Signals Based On Excessive Sleepiness and Distraction State Detection<br><i>Abdeljalil El Hadiri, Lhoussain Bahatti, Abdelmounime El Magri and Rachid Lajouad</i>                       |        |
| 09h00 – 09h15  | Deploying Computational Intelligence AI and Psychovisual Quality Optimization Tools In Embedded Image Coding to Enhance the Medical MIoT Features<br><i>Abderrahin Bajit, Ilham Morino, Siham Beloualid and Abdelhadi El Allali</i> |        |
| 09h15 – 09h30  | Tent Chaotic Virtual Force Algorithm based Node Deployment of Wireless Sensor Network in Airport Terminal<br><i>Hui Sun, Daidi Liu and Rui Wang</i>                                                                                 |        |
| 09h30 – 09h45  | Advanced Energy efficient routing protocol for wireless sensor networks using progressive concentric algorithm<br><i>Adil Hilmani</i>                                                                                               |        |



## REGULAR SESSIONS PROGRAM

### WEDNESDAY Morning Session Content

| WeM3           | July 12, 2023                                                                                                                                                                                                                          | Room 3 |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic          | Energy Efficiency and Sustainability                                                                                                                                                                                                   |        |
| Session chairs | <b>Prof. Ahmed Ait Errouhi</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                       |        |
|                | <b>Prof. Aouatif Saad</b><br><b>Ibn Tofail University, Kenitra, Morocco</b>                                                                                                                                                            |        |
| 08h30 – 08h45  | <b>Energy efficiency measures and technical-economic study of a photovoltaic self-consumption installation in Kenitra, Morocco</b><br><i>Zakaria Oumimoun, Oumaima Choukai, Achraf El Kafssaoui, Ahmed Ait Errouhi and Zejli Driss</i> |        |
| 08h45 – 09h00  | <b>Study the pollutant emissions impact of solid biomass combustion on environment: Argan Nut Shell biomass (ANS) case.</b><br><i>Ayoub Najah Elidrissi, Mohammed Benbrahim and Nadia Rassai</i>                                       |        |
| 09h00 – 09h15  | <b>Case study toward a Smart Building</b><br><i>Oumaima Ait Omar, Oumaima Choukai and Hassan El Fadil</i>                                                                                                                              |        |
| 09h15 – 09h30  | <b>Multi-Trip Optimization Model for Municipal Solid Waste Collection Systems Under Capacity and Operational Time Constraints</b><br><i>Otman Ait Ihia, Driss Khomsi and Naoual Semlali Aouragh Hassani</i>                            |        |

## REGULAR SESSIONS PROGRAM

### WEDNESDAY Morning Session Content

| WeM4           | July 12, 2023                                                                                                                                                                                                                                      | Room 4 |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic          | Model Predictive Control                                                                                                                                                                                                                           |        |
| Session chairs | <b>Prof. Aziz Rachid</b><br>Hassan II University, Casablanca, Morocco                                                                                                                                                                              |        |
|                | <b>Prof. Elhoussaine Ouabida</b><br>Ibn Tofail University, Kenitra, Morocco                                                                                                                                                                        |        |
| 08h30 – 08h45  | <b>A game guidance law based on model predictive control</b><br><i>Lixi Tang, Zhengjie Wang and Hongbao Du</i>                                                                                                                                     |        |
| 08h45 – 09h00  | <b>Sliding Mode Observer based Adaptive Model Predictive Control for a Disturbed Flexible Manipulator Active Vibration Control</b><br><i>Bakhti Mohammed, Ben Tarla Lahssan, Bououlid Idrissi Badr and Zegrari Mourad</i>                          |        |
| 09h00 – 09h15  | <b>Harmonics Reduction on Electric Power Grid Using Parallel Active Filter with Model- Predictive Control</b><br><i>Abdelilah El Mazouzi, Tarik Jarou, Salma Benchikh, Elmehdi Nasri, Roa Lamrani, Idriss Mortabit and Abderrahmane El Kachani</i> |        |
| 09h15 – 09h30  | <b>Adaptive Model Predictive Control based Lateral Velocity and Yaw Rate Tracking for Road Wheeled Vehicles</b><br><i>Fatima Zahra Rahmouni and Mohammed Bakhti</i>                                                                                |        |

## REGULAR SESSIONS PROGRAM

### WEDNESDAY Morning Session Content

| WeM5                 | July 12, 2023                                                                                                                                                                                                                                          | Room 5 |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Topic                | Modeling and Parameter Identification                                                                                                                                                                                                                  |        |
| Session chairs       | <b>Prof. Abdessamad Naitali</b><br><b>Mohammed V University, Rabat, Morocco</b>                                                                                                                                                                        |        |
|                      | <b>Prof. Ling Xu</b><br><b>Changzhou University, China</b>                                                                                                                                                                                             |        |
| <b>08h30 – 08h45</b> | <b>PEM Fuel Cell Parameters Identification Based on Grey Wolf Optimization Algorithm</b><br><i>Seddik Khamlichi, Aziz Rachid, Elhoussaine Saidi, Idriss Mortabit, Nidale Errifai, Hassan El Fadil and Mostapha Oulcaid</i>                             |        |
| <b>08h45 – 09h00</b> | <b>Modeling and control design of interleaved totem pole PFC AC/DC converter for electric vehicle On-Board Chargers OBC</b><br><i>Bentalhik Issam, El Fadil Hassan, Lassioui Abdellah, El Idrissi Zakariae, Koundi Mohamed and Ait Jillali Yassine</i> |        |
| <b>09h00 – 09h15</b> | <b>Online parameter learning of Hammerstein systems</b><br><i>Xiao Zhang, Feng Ding and Ling Xu</i>                                                                                                                                                    |        |
| <b>09h15 – 09h30</b> | <b>Bionic Machine Fish C-shaped Steering Motion Simulation And Parameter Optimization</b><br><i>Zixian Tang and Yue Ma</i>                                                                                                                             |        |