

FINAL PROGRAM



23-25 October 2024

eman ta zabal zazu



Universidad
del País Vasco

Euskal Herriko
Unibertsitatea

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ESM®2024 IS A HYBRID EVENT

ONLINE PRESENTATIONS ARE DENOTED BY _ONL AFTER THE PAPER CODE

The ESM®2024 final programme also gives you info on how to virtually attend the event. A personalised email with login info will be forwarded to all registered participants

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General Information


1. Conference Location


The **ESM®'2024 Conference** is being held at



University of the Basque Country

Library Building "Carlos Santamaria EHU"
Plaza de Elhuyar, 2
20018 San Sebastián, Gipuzkoa
Spain

 Tel: +34.943 03 3063

 Email:
josedavid.nunez@ehu.eus

The registration desk will be placed next at the entrance of the Library Building from Wednesday morning October the 23rd onwards, where registration will start at 08.00 a.m. and will end at 5.00 p.m. On Thursday October 24th the registration will be open from 08.30 a.m. until 04.00 p.m. On Friday October 25th registration will only be open from 9.00 a.m.- 9.30. a.m. The way to the conference and desk will be signposted.

ALL MAJOR MAPS ARE AT THE BACK OF THIS PROGRAMME

How to reach the conference location in San Sebastian

By Plane

San Sebastian has 3 airports within just about 100km from the city.

San Sebastian Airport (EAS) is only 20km from the city centre, there are connections to the major Spanish cities; Madrid and Barcelona, among others.

Airport Bus to San Sebastian (Best option: E21- Other options: E20, E23, E27, E28)

Bilbao Airport (BIO), with connections to all Europe, is 100km from the city

Airport Bus to San Sebastian (Bus station)

Biarritz Airport (BIQ), served by French and international low-cost companies, 40km

Airport Bus to San Sebastian (Bus station)

Airport Bus to Biarritz Train Station (**Lines 3 and 4**).

Biarritz Train Station to Hendaye Train Station (SNCF) (TGV and TER)

Hendaye Train Station (EUSKOTREN) to San Sebastián. (**City Centre: AMARA-DONOSTIA stop - Closest to University: LUGARITZ-DONOSTIA stop (15 min by walk to University).**)

General Information

By Train

(You can check the train network [here](#))

RENFE: with arrival and departure from **San Sebastian Train Station** is next to the **San Sebastian Bus Station**.

IRUN-BRINKOLA : Short journey: Suburban train (called **Cercanias**), no online reservation possible

EUSKOTREN (also known as Metro Donostialdea) (E1: BILBAO-MATIKO – AMARA-DONOSTIA - E2: HENDAYE – LASARTE-ORIA)

By Bus

Long distance: all of them stop at **San Sebastian Bus Station**
Interurban: (from San Sebastian airport) Last stop is in Gipuzkoa Square.

University lines: 5-25-27-33-35-40-43-45-47

5-25-47 (to the city centre)

27-33-35-40-43 (to other parts of the city)

45 (to RENFE/Bus Station)

By Taxi

San Sebastian Taxis



Taxi Donosti: +34 943 46 46 46

Vallina Teletaxi: +34 943 40 40 40

By Car

Getting to San Sebastián by car is extremely easy. The city is connected to the rest of Spain and France by the **N-1** (the national highway connecting Madrid to Irun), the **AP-8 (Bilbao-Irun)** and **A-63 (Paris-Irun)** motorways and the **A-15 highway (Pamplona-San Sebastián)**.

Once in San Sebastián, you can leave your car in one of the more than 6,000 parking places found in different parts of the city.

You can download some appropriate maps in pdf format from these [Car parking in San Sebastian](#)  and [San Sebastian Tourist Map](#) 

On Foot

Most Conference [hotels](#) are within walking distance of the conference site.

ESM®'2024 VIRTUAL PARTICIPATION AND PRESENTATION

As some ESM®'2024 participants have opted for an online presentation, we are opening up a virtual environment for the ESM®'2024 presentations using TEAMS: <https://www.microsoft.com/en-us/microsoft-teams/group-chat-software>. A first trial is envisaged on **Monday the 21st of October from 14h00 to 15h00**.

General Information

2. Login and wifi

Each online registrant will receive a **name login** upon registration. **The login is personal and non-transferrable and can only be your name. Company or generic university logins are NOT allowed. Non-regular logins will be removed from the online meetings.**

WIFI will be available for all participants during the conference.

3. Tickets

Prices of extra tickets for non-registered companions

Extra conference dinner	€ 80
Extra lunch ticket	€ 25

4. Registration

The ESM®2024 Registration will be open onsite at the entrance of the Library Building and online for information and registration info for those already registered. **AT CONFERENCE REGISTRATION CAN ONLY BE DONE ONLINE FOR THOSE STILL WISHING TO REGISTER AS A VIRTUAL PARTICIPANT AT THIS TIME**

<https://www.eurosis.org/conf/esm/2024/email-registration.html>

Wednesday, October 238.00 a.m. to 5.00 p.m.

Thursday, October 248.30 a.m. to 4.00 p.m.

Friday, October 259.00 a.m. to 9.30 a.m.

5. Conference Proceedings

Each electronic **fully** paid registrant will be provided with an electronic copy of the Conference Proceedings. **Fully paid onsite participants** will be provided with a printed copy of the conference proceedings as well as an electronic copy. **This is NOT applicable to students who are not authors and who have not fully registered.**

(Extra electronic or printed copies are available after **ESM®'2024**)

Price: (or equivalent in another currency) for an extra copy

Printed ESM®2024 Proceedings	€ 65 plus 30% shipping costs
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6. Meeting Rooms and Room Legend

The ESM®2024 conference will be held in **parallel meeting rooms designated AUDITORIUM, ROOM 1, ROOM 2 and ROOM 3** in this programme.

General Information

7. Need Help?

Please see the registration desk or contact EUROSIS (philippe.geril@eurosis.org) for your questions

8. Social Event and Lunches

All registrants are invited to

All **Coffee Breaks** for all 3 days which are served in the



Txillardegui Room

Library Building "Carlos Santamaria EHU"
Plaza de Elhuyar, 2
20018 San Sebastián, Gipuzkoa
Spain

All lunches on the 24th and 25th are served at



Kanpus restaurant



Ignacio Maria Barriola Building
a.k.a. Classroom building: aulario
20018 San Sebastián, Gipuzkoa
Spain

The Conference Dinner

All participants are invited to the conference dinner which will be held on **THURSDAY the 24th of October at the Restaurante Tennis Ondarreta** at 20.30 p.m. As we need to give an exact number of participants we would appreciate **your confirmation at the desk before Wednesday lunchtime.**



Restaurante Tennis Ondarreta
Eduardo Chillida Pasealekua, 9,
20008 Donostia, Gipuzkoa, Spain
<https://tenisondarreta.com/>

 Tel: +34 943 31 11
 Email: bodastenis@gmail.com

Session Chairs information

9. Conference Visit

No Conference visit is envisaged.

10. Best Paper Award

During the conference the papers, which were accepted as **extended** papers will be judged by the committee and conference participants in order to choose the best paper of the ESM®2024 conference.

The best paper author of the conference receives a certificate and a free registration to any EUROSIS event held within 2 years after receiving the best paper award. This registration waiver is only VALID FOR 2 YEARS AFTER RECEIPT AND FOR 1 (ONE) PERSON. In case of multiple authors, one (1) author only can use the registration waiver.

ALL SESSION CHAIRPERSONS IN THIS PROGRAM ARE PROVISIONAL

Session Chairs are chosen on a voluntary basis by proposals by either authors or local committee members or are appointed by the Track Chairs, General Program Chair or General Conference Chair. They are responsible for their assigned session. They make sure their speakers are available, take care of the timing within the session, chair the discussion after each presentation and introduce each speaker based on the CV's given to them by the authors. **If a session chair is not available then the first author takes on the responsibility to chair** In case they chair a session featuring **extended papers**, then they are required to distribute and collect the reviews of that or those papers at the beginning and end of the session. If they have time they should also indicate in their papers the number of session participants.

THE NUMBERS NEXT TO THE PRESENTATIONS DENOTE THE PAGE-NUMBERS IN THE PROCEEDINGS. IF NO NUMBERS ARE MENTIONED THEN THIS PAPER IS NOT PUBLISHED IN THE PROCEEDINGS

THE AUTHORS WHO ARE UNDERLINED ARE NORMALLY THE PRESENTERS

ONLY PAPERS IN GREY BOXES ARE THE EXTENDED PAPERS ELIGIBLE FOR THE BEST PAPER AWARD

WEDNESDAY, 23rd OCTOBER 2024

08.00-17.00	REGISTRATION		
09.00-09.15	WELCOME BY MANUEL GRAÑA AND JOSE DAVID NUÑEZ GONZALEZ – ESM'2024 GENERAL CONFERENCE CHAIRS – AUDITORIUM		
09.15-10.00	KEYNOTE SPEECH BY MICHAL WOZNAK - AUDITORIUM		
10.00-10.30	COFFEE BREAK - Txillardegi Room		
10.30-13.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SIMULATION IN EMERGENCY MANAGEMENT	MACHINE LEARNING I 4	SMART ENERGY GRID MANAGEMENT
13.00-14.00	LUNCH BREAK - Kanpus restaurant		
14.00-15.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SOCIAL SYSTEM SIMULATION I	MACHINE LEARNING II 2	TUTORIAL MATEJ URBAN
15.00-15.30	COFFEE BREAK - Txillardegi Room		
15.30-17.30	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SOCIAL SYSTEM SIMULATION II	HUMAN-IN-THE-LOOP SIMULATION	SMART GRID CO-SIMULATION
17.30	END OF DAY I		

THURSDAY, 24th OCTOBER 2024

08.30-17.00	REGISTRATION		
09.00-10.00	KEYNOTE SPEECH BY RICHARD DURÓ – AUDITORIUM		
10.00-10.30	COFFEE BREAK - Txillardegi Room		
10.30-13.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	ANALYTICAL AND NUMERICAL SIMULATION TECHNIQUES	ROBOTICS SIMULATION AND NAVIGATION	
13.00-14.00	LUNCH BREAK - Kanpus restaurant		
14.00-15.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SIMULATION METHODOLOGY AND OPTIMIZATION I	HARDWARE COMPUTING I	RENEWABLE ENERGY TECHNOLOGIES
15.00-15.30	COFFEE BREAK - Txillardegi Room		
15.30-17.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SIMULATION METHODOLOGY AND OPTIMIZATION II	HARDWARE COMPUTING II	TUTORIAL
17.00	END OF DAY II		
20.30-22.30	CONFERENCE DINNER Restaurante Tenis Ondarreta		

FRIDAY, 25th OCTOBER 2024			
09.00-09.30	REGISTRATION		
09.00-10.00	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	BACK-UP SESSION	SIMULATION IN ENGINEERING AND MANUFACTURING I	
10.00-10.30	COFFEE BREAK - Txillardegi Room		
10.30 12.30	PARALLEL SESSIONS		
	ROOM 1	ROOM 2	ROOM 3
	SIMULATION IN BIOLOGY AND MEDICINE	SIMULATION IN ENGINEERING AND MANUFACTURING II	
12.30-12.45	CLOSING SESSION AND BEST PAPER AWARD ROOM 1		

Notes

NOTES

Wednesday, 23rd October 2024

Registration

08.00 - 17.00

AUDITORIUM – 09.00 – 09.15

Opening ESM'2024 and Welcome

Welcome Address

Jose David Nuñez Gonzalez and Manuel Graña Romay, UPV/EHU, Spain

ESM®'2024 General Conference Chairs

09.15 – 10.00

AUDITORIUM – 09.15-10.00

KEY

KEYNOTE SPEAKER

Chair: David Núñez, UPV/EHU, Spain



KEY_01

[Learning to unlearn](#)

Michal Wozniak, Wrocław University of Science and Technology, Wrocław, Poland

10.00 - 10.30

COFFEE BREAK - Txillardegui Room

Welcome

Wednesday, 23rd October 2024

10.30 – 13.00

ROOM 1 – 10.30-13.00 **EMERG**
SIMULATION IN EMERGENCY MANAGEMENT
Chair: David Núñez, UPV/EHU, Spain

SIM_DISC_MIL_01
Multi-Scale Discrete-Event Simulation Framework for Dynamic Combat Effectiveness Assessment
Irene Ndinabahizi, Tom Vancayzeele, Ben Lauwens and Johan Gallant 161

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FFT Based Anomaly Detection in Railway Systems
Asier Garmendia-Orbegozo, Ivan Araquistain Marquina, Miguel Angel Anton and Jose David Nuñez-Gonzalez 169

SIM_EMERG_03_BUS
Use of Information to Support Application Software and Simulations in Crisis Management
Daniel Chovanec, Boris Kollár and Jozef Ristvej 175

SIM_EMERG_05
Diagnostic and Prevention Tools for Attacks in an Information System
Mamadou Kassé, Cyrille Bertelle, Rodolphe Charrier and Alexandre Berred 180

SIM_EMERG_06_MIL_ONL
Strategic Wargame Toolset for the Investigation of Emerging Disruptive Technologies Impact in Multidomain Operations
Andrzej Naigebauer, Ryszard Antkiewicz and Dawid Maślanik 188

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MACHINE LEARNING I
Chair: Manuel Graña, UPV/EHU, Spain

SIM_AI_16_MAC
Machine Learning, Simulation and Reproducibility Impact of Random Numbers
David R.C. Hill, Benjamin Antunes, Anthony Bertrand, Engelbert Mephu Nguifo, Loïc Yon, Jeanne Nautré-Domanski and Violaine Antoine 65

Wednesday, 23rd October 2024

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Optimizing Predictive Performance through Machine Learning Algorithm Selection and Hyperparameter Tuning

Paulina Tsvetkova, Mayiana Mitevka and J. David Nuñez-Gonzalez 71

SIM_AI_13_NEUR_BIO

Augmented Single Instance-Driven Identification of Fungal Pathogens through the Convolutional Neural Networks

Rafal Wyszynski, Karol Struniawski and Aleksandra Konopka..... 79

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In Search of a Sequence Classifier for a System Employing NLP Encoding

Tomasz Strzoda, Joanna Polańska, Lourdes Cruz-Garcia, Mustafa Najim and Christophe Badie 84

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ENERG

SMART ENERGY GRID MANAGEMENT

Chair: Lucía Porlán, UPV/EHU, Spain

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Comparing the Resilience of Optimized Hybrid Renewable Energy Systems

Lasse Hammer, Stephan Balduin and Eric MSP Veith 314

SIM_LEARN_AG_14

Power Switch: Online vs. Offline Learning in the Energy Domain

Arlena Wellßow and Eric MSP Veith 325

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Eric MSP Veith and Emilie Frost..... 328

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Eike Schulte and Stephan Balduin 334

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Malin Radtke and Sebastian Lehnhoff..... 339

Wednesday, 23rd October 2024

13.00 - 14.00

LUNCH BREAK - Kanpus restaurant

14.00 – 15.00

ROOM 1 – 14.00-15.00

SYSTEM

SOCIAL SYSTEM SIMULATION I

Chair: Miguel Angel Antón, Tecnalía, Spain

SIM_METH_03_ONL

A Conceptual Modeling Framework for Socio-Technical Systems - A Case Study in Health Care

Florian Schierlinger-Brandmayr, Philipp Url, Mario Mauberger, Siegfried Voessner, Heidrun Sagmeister, Elisa Sieghartsleitner, Karl Tamussino, Diether Kramer and Sigurd Lax 130

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Seweryn Kalisz, Michał Marczyk, Rafał Fagas and Joanna Polańska 138

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Chair: Manuel Graña, UPV/EHU, Spain

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Leveraging Machine Learning for Threat Hunting in Network Security

Velizar Varbanov and Tatiana Atanasova 76

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Capacitive Touch Sensor Modeling with a Physics-Informed Neural Network and Maxwell's Equations

Ganyong Mo, Krishna Kumar Narayanan, David Castells-Rufas and Jordi Carrabina 90

ROOM 3 – 14.00-15.00

TUT

TUTORIAL

Chair: Asier Garmendia, Tecnalía, Spain

Wednesday, 23rd October 2024



TUT_02

[Addressing Common Obstacles in Credit Risk Modeling and Solutions](#)

[Matej Urban](#), AREA42, Brussels, Belgium

15.00 - 15.30

COFFEE BREAK - Txillardegi Room

15.30 – 17.30

ROOM 1 –15.30-17.00

SOCIAL

SOCIAL SYSTEM SIMULATION II

Chair: Miguel Angel Antón, Tecnalía, Spain

SIM_AGENT_01

Hardware Acceleration of Agent-Based Simulations of Social Media

Anna Gausen, [Ce Guo](#) and Wayne Luk 145

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Emotion Recognition using Biomedical Signals in a Multimodal Emotion Analysis System for Social Robots

[Kamil Skowroński](#), Adam Galuszka and Eryka Probierz..... 153

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[Egor Lazarevich](#)..... 125

ROOM 2 – 15.30-17.00

HUMAN

HUMAN-IN-THE-LOOP SIMULATION

Chair: Manuel Graña, UPV/EHU, Spain

SIM_ENERG_01

A Simulation on Graph-Based Learning for Energy Generation-Consumption Prediction in Energy Communities

[Lucia Porlan-Ferrando](#), [Raquel Riera-Lorenzo](#), [Leire Hernandez-Lecuona](#), [Ana Paula Aravena-Cifuentes](#) and [J. David Nuñez-Gonzalez](#) 199

Wednesday, 23rd October 2024

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Exploring Acceptance Factors of Internet of Things in Smart Home

Marzie Sadat Kasaij and Rosaldo J.F. Rossetti..... 205

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State Dependent Time-Inhomogeneous CTMC Models of Customer Abandonment in Call Centers

Maciej Rafal Burak211

ROOM 3 – 15.30-17.30

ENERG

SMART GRID CO-SIMULATION

Chair: Asier Garmendia, Tecnalia, Spain

SIM_LEARN_AG_12

Show-Off — Towards a Framework for Comprehensive and Systematic Visual Analysis of Learning Agents Performance in Smart Grid Co-Simulations

Lena Engemann, Arlena Wellssow and Eric MSP Veith 347

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An Open-Source Carbon Emissions Simulator for Smart Grid Co-Simulation Scenarios

Danila Valko, Sharaf Alsharif and Deborah Tolk..... 355

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MASSCA: Scalable Multi-Agent System Framework for Smart Power Cell Co-Simulation

Danila Valko, Sharaf Alsharif, Deborah Tolk and Tobias Grimm 361

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Co-Simulation Analysis for Large-Scale Electrolysers Integration in Electricity Grids

Sharaf Alsharif, Danila Valko, Nils Huxoll, Jelke Wibbeke, Tobias Grimm and Michael Brand..... 369

17.30

END OF DAY I

Thursday, 24th October 2024

Registration

08.30 - 16.00

09.00 – 10.00

AUDITORIUM – 09.00-10.00

KEY

KEYNOTE

Chair: David Núñez, UPV/EHU, Spain



INV_01

[A Cognitive Approach to Purposeful Autonomous Robots: Leveraging Motivational Hierarchization and Contextual Processing](#)

[Richard Duró](#), University of A Coruña, Spain

10.00 – 10.30

COFFEE BREAK - Txillardegi Room

ROOM 1 – 10.30-12.00

ANMT

ANALYTICAL AND NUMERICAL SIMULATION TECHNIQUES

Chair: David Núñez, UPV/EHU, Spain

SIM_ANMT_01

Optimal Arrangement of Collocation Points in Pies for 2D Elastic Problems using PSO

Agnieszka Boltuć and [Eugeniusz Zieniuk](#)..... 45

SIM_ANMT_04

Method for Eliminating Singular Boundary Integrals in Pies for Two-Dimensional Poisson Problems

[Krzysztof Szerszeń](#) and [Eugeniusz Zieniuk](#)..... 52

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Thursday, 24th October 2024

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Ryszard Kozera and Magdalena Wilkolazka 57

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ROBOTICS SIMULATION AND NAVIGATION
Chair: Manuel Graña, UPV/EHU, Spain

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Tuning of PID Controller Using IC Algorithm for a Capsubot
Artur Babiarz..... 219

SIM_TOOLS_01
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Dominik Muszyński and Artur Babiarz 224

SIM_AUTO_01_ONL
Path Planning of Guide Robot with Nonholonomic Constraints for Visually Impaired Assistance
Tomasz Grzejszczak and Michał Lasak 229

SIM_VIR_PRO_01_ONL
Application of RFID Tag Array to pose Estimation of a Moving Object
Krzysztof Skrzypczyk..... 234

SIM_VR_01
Utilization of Haptic Feedback to facilitate Navigation for Visually Impaired Individuals
Michał Lasak and Tomasz Grzejszczak 239

13.00 – 14.00
LUNCH BREAK - Kanpus restaurant

14.00 – 15.00

ROOM 1 – 14.00-15.00 **METH**
SIMULATION METHODOLOGY AND OPTIMIZATION I
Chair: Manuel Graña, UPV/EHU, Spain

Thursday, 24th October 2024

SIM_METH_04_LOGIS

Modeling Cargo Clearance Duration Using Unshared Frailty Models

Liberato Camilleri and David Kipchumba Kemboi..... 5

SIM_METH_06_OP

Estimating Persistence: Hurst Exponent vs Empirical Persistence

Igor Litvine..... 13

ROOM 2 – 14.00-15.00

HARDWARE

HARDWARE COMPUTING I

Chair: Igone Morais, UPV/EHU, Spain

SIM_OP_07_ONL

A Simulator-Based Study of In-Network Computing in Parallel Computing Systems with Fat-Tree Network Topology

Caglayan Dokme and Kayhan Imre..... 283

SIM_ANMT_02

Influence of Selected IFPIES Parameters on CPU Time and RAM Utilization

Andrzej Kuźelewski and Eugeniusz Zieniuk 288

ROOM 3 – 14.00-15.00

ENERG

RENEWABLE ENERGY TECHNOLOGIES

Chair: David Núñez, UPV/EHU, Spain

SIM_RENEW_ENERG_01

Paradigmatic Case of Long-Term Co-location Wind-Wave Energy Feasibility Index Trend in Cantabrian Sea

Hodei Ezpeleta Lopetegi, Oihana Aristondo Etxeberria and Alain Ulazia Manterola..... 303

SIM_AI_01

Brainstorming on Green AI Approach by Dimensionality Reduction for Sea Waves Height Prediction

Lucia Porlan-Ferrando, J. David Nuñez-Gonzalez and Alain Ulazia Manterola..... 311

Thursday, 24th October 2024

15.00 – 15.30

COFFEE BREAK - Txillardegui Room

15.30 – 17.30

ROOM 1 – 15.30-17.00

METH

SIMULATION METHODOLOGY AND OPTIMIZATION II

Chair: Manuel Graña, UPV/EHU, Spain

SIM_METH_07_OP

Persistence and Long Memory in Random Processes

Igor Litvine and Farai Mlambo 20

SIM_OP_01_ONL

Statistical Optimization with Averaging using a Mode of Six

William Conley..... 31

SIM-OP_05_ONL

Multi-Stage Monte Carlo Optimization with Averaging using a Mode of Eleven

William Conley..... 37

ROOM 2 – 15.30-16.00

HARDWARE

HARDWARE COMPUTING II

Chair: Igone Morais, UPV/EHU, Spain

SIM_AI_09_NEUR

Increasing the Observation Capabilities of Small Solar Telescopes using Neural Networks

Piotr Jóźwik-Wabik and Adam Popowicz..... 294

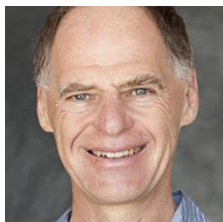
ROOM 2 – 15.30-17.00

TUT

TUTORIAL

Chair: Lucía Porlán, UPV/EHU, Spain

Thursday, 23rd October 2024



TUT_01

[A State-of-the-Art Review of Random Number Generators with Parallel Streams](#)

Prof. Pierre L'Ecuyer, DIRO, Université de Montréal, Montréal, Canada

17.30

END OF DAY II



20.30

CONFERENCE DINNER

All ESM®'2024 participants are invited to the Conference Dinner which will be held from 20.30 p.m. at the:



Restaurante Tennis Ondarreta
Eduardo Chillida Pasealekua, 9,
20008 Donostia, Gipuzkoa, Spain
<https://tenisondarreta.com/>

 Tel: +34 943 31 11
 Email: bodastenis@gmail.com

Parallel Sessions - Thursday

Friday, 25th October 2024

Registration

09.00 - 09.30

09.00 – 10.00

ROOM 1 – 09.00-10.00 **BACKUP**

BACKUP SESSION

Chair: David Núñez, UPV/EHU, Spain

This is a session for authors who through unforeseen circumstances were unable to present their paper at the allocated timeslot. Contact the registration desk for further info.

ROOM 2 – 09.00-10.00 **ENGIN**

SIMULATION IN ENGINEERING AND MANUFACTURING I

Chair: Igone Morais, UPV/EHU, Spain

SIM_TOOLS_06

Model-Based Systems Engineering and Mechanical Computer Aided Design Integration

Raquel Arrontes Quiroga, Rhea Mathew and Rob Vingerhoeds 247

SIM_AI_07_NEUR_ENG

Frequency Driven Screw Compressors State Prediction in Modern Air Control System

Kamil Kasprzyk and Adam Galuszka..... 252

10.00 - 10.30

COFFEE BREAK - Txillardeggi Room

10.30 – 12.30

ROOM 1 – 10.30-12.30 **BIO**

SIMULATION IN BIOLOGY AND MEDICINE

Chair: Igone Morais, UPV/EHU, Spain

Friday, 25th October 2024

SIM_BIO_01 Intraocular Lens Implant Support System for Patients with Astigmatism <u>Krzysztof Jaskot</u> and <u>Robert Bieda</u> 97

SIM_BIO_05_ONL A Multi-Input Optimal Control Problem for Chemotherapy and Anti-Angiogenic Treatment <u>Mariusz Bodzioch</u> 104

SIM_BIO_07 Data-Driven Model for Chronic Kidney Disease Progression: A Work in Progress <u>Candelaria Alvarez</u> , <u>Remo Suppi</u> , <u>Jose Ibeas</u> and <u>Javier Balladini</u> 110

SIM_BIO_09 A Simplified Heart Age Model based on Cellular Automata <u>Beata Jackowska-Zduniak</u> 114

ROOM 2 – 10.30-12.30	ENGIN
SIMULATION IN ENGINEERING AND MANUFACTURING II	
Chair: Manuel Graña, UPV/EHU, Spain	

SIM_AI_03_NEUR An Artificial Neural Network Model to Predict the Vibration at the Hands of a Drill Operator <u>Omarelfarouq Elgack</u> , <u>Saleh AlBaiti</u> and <u>Naser Nawayseh</u> 259

SIM_AERO_01 Using Digital Twins in a Scenario-based Simulation Approach to Develop and Validate Operations Concepts for Spacecraft Components <u>Kristina Enes</u> , <u>André Kupetz</u> , <u>Gregor Jochmann</u> and <u>Juergen Roßmann</u> 265
--

SIM_IOT_04_ONL ML-IDS Solution for Securing Flexible Manufacturing Simulator (FMS)-Based IIOT Architecture <u>Aymen Wali</u> , <u>Hichem Mrabet</u> and <u>Abderrazek Jemai</u> 270

SIM_TOOLS_05 Quantitative Assessment of Complexity in SysML Models <u>Lakshmi Bhargav Gullapalli</u> , <u>Anoushka Bhatnager</u> , <u>Pierre de Saqui-Sannes</u> and <u>Rob Vingerhoeds</u> 275

Parallel Sessions - Friday

Friday, 25th October 2024

ROOM 1 – 12.30 - 12.45

BEST PAPER

CLOSING SESSION AND BEST PAPER AWARD

Chair: xxxxxxxx

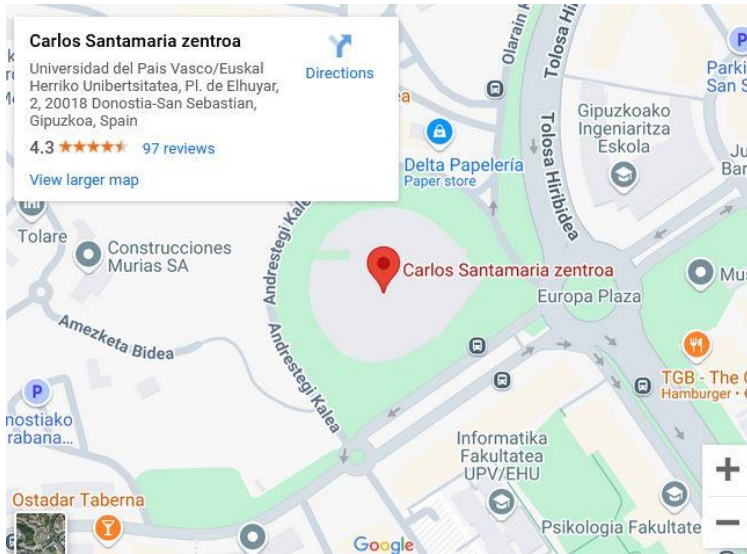
Jose David Nuñez Gonzalez and Manuel Graña Romay, UPV/EHU, Spain

Philippe Geril, EUROSIS, Ostend, Belgium

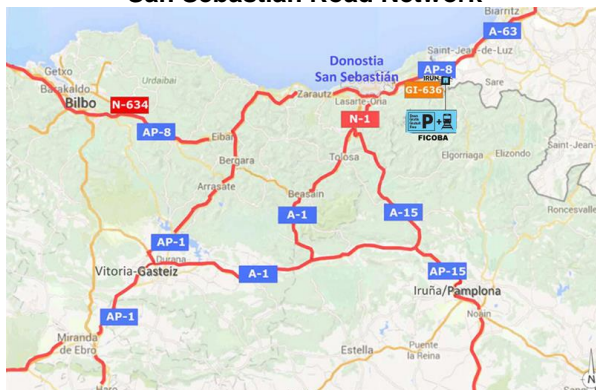
12.45

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