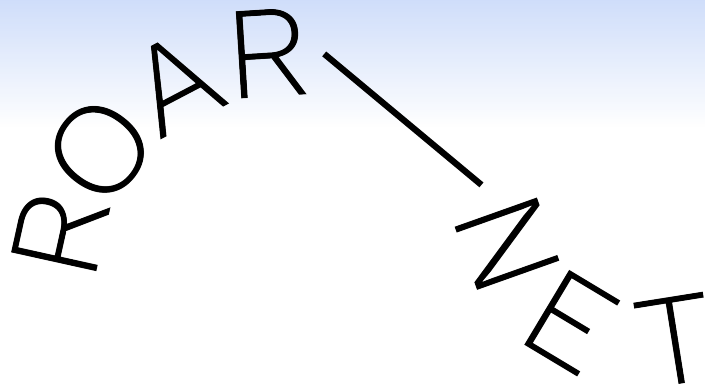


Problem Modelling Code Fest

9-11 September 2025



Randomised Optimisation Algorithms Research Network

Carlos M. Fonseca
Action Chair

9 September 2025

About COST Actions

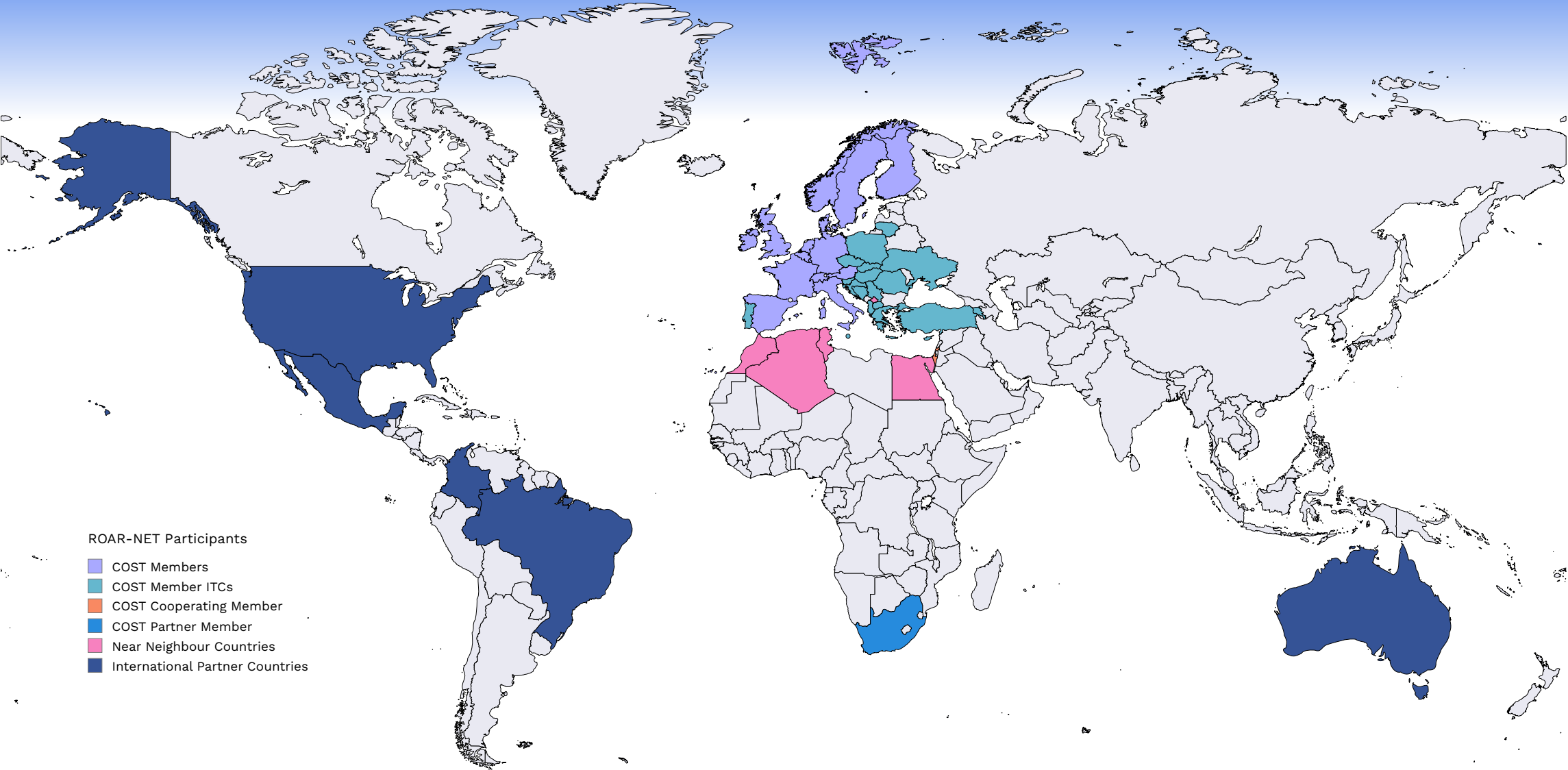
- “A COST Action is an interdisciplinary research network that brings researchers and innovators together to investigate a topic of their choice for 4 years.”
- “COST Actions offer an inclusive, pan-European environment for individuals of all levels of seniority to grow their professional research networks and boost their careers.”

ROAR — NET

About ROAR-NET

- COST Action running from 2 October 2023 to 1 October 2027
- 34 countries represented in the Management Committee
- 6 Working Groups
- 460 Working Group members from 46 countries/territories

ROAR-NET



- ROAR-NET Participants
- COST Members
 - COST Member ITCs
 - COST Cooperating Member
 - COST Partner Member
 - Near Neighbour Countries
 - International Partner Countries

Challenge

- Making Randomised Optimisation Algorithms (ROAs) highly competitive in practice
- Achieving widespread adoption of ROAs in the real world and the sustained availability of supporting software tools
- Addressing not only ROA performance, but also all aspects of their practical application, including the humans, processes, and technologies involved

ROAR—NET

Working Groups

1. Problem modelling and user experience
2. Mixed continuous and discrete optimisation
3. Single- and multiobjective optimisation
4. Optimisation under uncertainty
5. Algorithm selection and configuration
6. Benchmarking

ROAR—NET

Activity Plan

Activity	Year 1				Year 2				Year 3				Year 4			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
MC meetings	♦ 1.1	1.2 ♦			2.1 ♦				3.1 ♦				4.1 ♦			
Core Group meetings				1 ♦				2 ♦				3 ♦				4 ♦
WG meetings	1.1 ♦															
		2.1 ♦														
					3.1 ♦											
							3.2 ♦									
									4.1 ♦							
Events	Worksh.1 ♦															
			Training School 1 ♦													
					Code Fest ♦											
									Workshop 2 ♦							
													Training School 2 ♦			
													Competition ♦			
Internet presence	Setup															
		Maintenance														
Reporting				PR1 ♦				PR2 ♦							FAR ♦	

ROAR—NET

Events

- Action Workshops
- Working Group meetings (online and on site)
- Training Schools
- **Problem modelling code fest (online)**
- Solver competition (online)

ROAR—NET

Online Working Group Meetings

- Periodicity and format vary considerably with Working Group
- Most Working Groups have organised themselves internally into “Task Forces” or “Focus Groups”, and designated TF/FG “leaders” / “coordinators”
- Enable participation from members outside Europe

ROAR—NET

First ROAR-NET Training School

Belvaux, Luxembourg, 16-20 June 2025

- Computational modelling of combinatorial optimisation problems
- Call for Trainee Applications (64 applicants)
- Financial support for 24 trainees
- 30 trainees from 17 countries invited

ROAR-NET

First ROAR-NET Training School in Numbers

- 30 Trainees + 9 Trainers
- 18 Countries of affiliation
- 8 Lectures
- 2 Poster sessions
- 5 Modelling projects
- 3 Problem-structuring cases
- Ice-breaking and team-building activities

The logo for ROAR-NET, featuring the word "ROAR" in a bold, sans-serif font, followed by a diagonal line and the word "NET" in a similar font.



First ROAR-NET Training School

Belvaux, LU

16–20 June 2025

ROAR—NET

Problem Modelling Code Fest

Online, 9-11 September 2025

- 48-hour hackathon-style coding event
- 20 physical hubs in 17 countries
- Call for Participation now closed
 - Training Track – 44 teams, 106 participants
 - Development Track – 13 teams, 36 participants
- Mentors available online throughout the event

ROAR—NET

Networking activities

- Short-Term Scientific Missions
- YRI Conference Grants
- (ITC Conference Grants)
- (Dissemination Conference Grants)
- (Virtual Mobility Grants)

ROAR—NET

Financial support

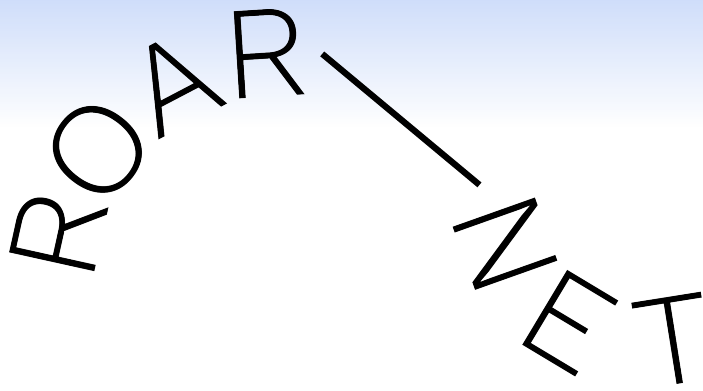
- Reimbursement
 - Participation in Meetings and Training Schools
- Grant awarding process
 - Local Organiser Support
 - Short-Term Scientific Missions – New Call in Year 3
 - Conference Grants – New Call in Year 3

ROAR—NET

Getting involved



- Joining ROAR-NET is possible at any time.
- Visit www.roar-net.eu for information on how to apply.



Problem Modelling Code Fest

Carlos M. Fonseca

9-11 September 2025

Programme

- Presentations
- Live-coding tutorials
- Q&A
- Training track
- Development track
- Participant feedback

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Training track

- 3 problems to model
 - Marketing campaign
 - Waste collection
 - Candle race
- Two types of models (and badges)
 - Constructive search
 - Local search
- Automatic judge: mooshak.roar-net.eu
- Badges awarded only after human evaluation

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Development track

- Several types of activities (and badges)
 - Problem-statement development
 - Constructive-search modelling
 - Local-search modelling
 - Problem-instance construction
 - ROAR-NET API tooling
 - ROAR-NET API RFC development

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Development track

- Submission
 - Make contribution publicly available, e.g., on personal GitHub repository
 - Open-source/open-access licence (ROAR-NET Copyright and Licensing Policy)
 - Request review via the Q&A feature in Zoom

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Achievement boards

- Last 20 badges awarded
- Development track
- Training track

Code Fest website: [**code-fest.roar-net.eu**](https://code-fest.roar-net.eu)



This presentation is based upon work from COST Action Randomised Optimisation Algorithms Research Network (ROAR-NET), CA22137, supported by COST (European Cooperation in Science and Technology).



COST (European Cooperation in Science and Technology) is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation.

www.cost.eu



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