

# ICCBR Doctoral Consortium 2025

## Preface

### Co-Chairs:

David Leake (Indiana University, USA)  
Mirjam Minor (Goethe University, Germany)

### Program Committee:

Kerstin Bach	Michael Floyd
Béatrice Fuchs	David Ménager
Antonio Sánchez-Ruiz	Brian Schack
Ian Watson	David Wilson
Nirmalie Wiratunga	

The sixteenth ICCBR Doctoral Consortium (DC) was held on 29–30 June, 2025 in Biarritz, France, as part of the 33rd International Conference on Case-Based Reasoning. Since ICCBR 2009, the DC has been an integral component of the annual Case-Based Reasoning conference, inviting Ph.D. candidates to submit their research statements for discussion with senior community members.

Ph.D. candidates applied to the program by submitting summaries of their doctoral research, which included the problems they are addressing, their proposed research plans, and progress made to date. This year, we received a total of nine submissions, all of which were accepted. Each accepted applicant refined their summaries based on review feedback and was paired with a mentor to provide advice and help them prepare their work for presentation. The updated research summaries of the candidates are included in this volume, and we are proud to continue the DC tradition with a cohort of nine doctoral students from five countries.

The DC activities commenced on Sunday, 29 June, with session in which participants were introduced and mentees and mentors met to discuss their research statements and make final preparations for the presentations on Monday. On Monday, 30 June, all students presented their contributions orally, followed by a discussion led by their respective mentors.

The submitted research statements span a wide range of topics, reflecting a breadth of student research activity, with CBR-LLM integrations and explainable AI as topics of special interest. Ramitha Abeyratne presents an AI evaluation framework using an ensemble of LLMs acting as judges. The evaluation methods are based on cases that align the problem and solution space for question-answering. Prunelle Daudré-Treuil investigates different types of CBR approaches (trace-based reasoning, conversational CBR, potentially with LLM support) to

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assist historians in the exploration and use of an archive of mathematician Henri Poincaré's correspondence. Chunyang Fan's research focuses on learning optimal similarity measures for analogical transfer, especially in the context of Complexity-Based Analogical Transfer. Toufik Hamadouche's work aims to assist geneticists in identifying mobile genetic elements in bacterial genomes by CBR. A solution from a source case is replayed to a new genome to delimit such elements. The explainability dimension is part of the ongoing work. Lasal Jayawardena's research aims to enhance decision-making through a CBR-LLM method to develop AI tools for tasks such as resource allocation and planning. Pedram Salimi's research focuses on generation of feasible, actionable and causally aware counterfactual explanations in natural language. Shweeta Soundararajan's research develops an integrated CBR-LLM approach to mitigating implicit gender bias in texts. Tolga Tel addresses the use of knowledge structures in a CBR-infused RAG system, particularly in the context of business process models. Finally, Jorge Vindel-Alfageme deals with auditing AI systems to identify any biases they may have. The ontology-based approach uses XAI and CBR to assist the auditing process.

We would like to express our gratitude to the AI Journal for funding support to the DC, enabling us to provide assistance to student participants, and to the ICCBR 2025 organizers for securing this funding and for their support of the DC. Additionally, we extend our appreciation to the nine PC members who provided detailed and valuable feedback on the research statements, and to the mentors who advised the students.

We would like to thank all the students, mentors, and program committee members for their hard work and dedication in making the DC a resounding success.

*David Leake and Mirjam Minor*

Biarritz, France, June 29, 2025