The 16th International Learning Analytics & Knowledge Conference

April 27 - May 1, 2026 Bergen, Norway

LAK26 Doctoral Consortium

Tues 28 April, 2026 • Invitational Event

Registration from 8am in Scandic City [map]

Doc Con 9am-5pm in Scandic Neptun [map] Room: Sal 3

Dinner: Pincho Nation, Vetrlidsallmenningen 15 [map]

Schedule overview

28th April, 2026	
Welcome	09:00
Firehose presentations (3min each)	09:15
Coffee break	10:30
SoLAR Student SIG Leader Presentation	11:00
AI Discussion [link]	11:15
Peer advice (4 tracks)	12:00
Lunch	12:30
Peer advice + Paper workshop (4 tracks)	13:30
Coffee break	15:00
Career Panel	15:15
Speed mentoring	16:00
Wrap-Up	17:00
Dinner @ Pincho Nation	18:30

The DC Chairs



Nia Nixon is an Associate Professor in the School of Education at the UCI, with a courtesy appointment in the Department of Cognitive Sciences. She directs the Language and Learning Analytics Laboratory (LaLA Lab) and is the founding director of the Master of Education Sciences program in Artificial Intelligence and Learning Analytics at UC Irvine. She also serves as a Distinguished International Professor at the Hector Research Institute of Education Sciences and Psychology at the University of Tübingen in Germany. Her research sits at the intersection of learning sciences, cognitive science, and artificial intelligence, with a focus on understanding the socio-cognitive and affective dynamics of collaborative problem solving. She develops computational approaches, including natural language processing and multimodal learning analytics, to study how teams coordinate, reason, and engage in real time. Her recent work focuses on human–AI teaming, exploring how AI systems function as collaborators in group settings and how their presence reshapes participation, trust, and epistemic agency. She leads the development of TRAIL (Team Research and AI Integration Lab), an experimental platform for studying human–AI collaboration in controlled, data-rich environments.



Negin Mirrahi is an Associate Professor and Academic Lead (Digital Innovation) in the School of Education at Adelaide University and Co-Director of the Higher Education Research Network, a research concentration comprising of higher education researchers from across Adelaide University. She is also a member of the Centre for Change and Complexity in Learning (C3L). Her research focuses on Higher Education with a particular focus on learning analytics for learning design, qualitative research related to learning analytics, generative AI in education, video-based learning, self-regulated learning, and technology adoption. Her current research project focuses on university students self-regulated learning approaches and their adoption of Generative AI. She supervises PhD students conducting research related to learning analytics, self-regulated learning, and higher education.



Luis P. Prieto is a Ramón y Cajal Research Fellow at the transdisciplinary Group of Intelligent & Cooperative Systems / Education, Media, Informatics & Culture (GSIC/EMIC) in the University of Valladolid (Spain). A former Marie Curie Fellow at EPFL (Switzerland) and ex-Associate Professor in Tallinn University (Estonia), he has researched in a wide range of

topics within learning technologies, from learning design to the orchestration of technology-enhanced learning, or the use of multimodal analytics to understand and support collaborative learning and teaching. He is currently researching doctoral studies, their widespread dropout and well-being problems, and how learning analytics and AI technologies could be leveraged to ameliorate them. His work has been featured in top journals in the field of educational technology, such as Computers & Education, IEEE Transactions on Learning Technologies, the Journal of Learning Analytics, or Educational Research Review. He also popularizes doctoral education research and practical advice for postgraduate students and supervisors at his blog, A Happy PhD.



Simon Buckingham Shum is Professor of Learning Informatics at the University of Technology Sydney where he has directed the Connected Intelligence Centre (CIC) since 2014. CIC is a transdisciplinary innovation centre inventing, piloting, evaluating and scaling data-driven personalised feedback to students. Prior to this he was at the UK Open University's Knowledge Media Institute (1995-2014). Simon comes from Human-Computer Interaction, and his career-long fascination with software's ability to make thinking visible has seen him active in communities including Hypertext, Computer-Supported Argumentation, eDemocracy, Educational Technology, Learning Analytics and AI in Education. He has contributed to Social Learning Analytics, Dispositional Analytics, Writing Analytics, Collaboration Analytics, and Belonging Analytics. He also documents how LA develops as an applied practice (institutionally embedding LA/AI-feedback), and scholarly community (impact of the LAK Doctoral Consortium). His current interests include human-AI friction, human/AI coding of textual data, and AIED in the era of polycrisis.

Doctoral Students

Wimukthi Thommadurage

Adelaide University, Australia

Transforming Online Social Learning: Leveraging AI Capabilities to Enhance Social Learning in Online Higher Education

[Homepage][LinkedIn] [Google Scholar]



Online learning is increasingly central to higher education, yet platforms often struggle to support effective social learning due to asynchronicity, learner diversity, and reduced interaction. Learning analytics provide powerful means to capture and interpret learner traces, while artificial intelligence offers new opportunities to act responsively on such data. However, research exploring how these capabilities can be integrated into learning designs to improve social learning in online environments is limited. This research addresses this gap by first conducting systematic reviews to synthesise reported challenges in online social learning and AI-mediated interventions. It then implements AIñbased tools in authentic higher education contexts to investigate their effectiveness in providing enhanced social learning experiences and collaborative outcomes. Across these studies, learnerñAI interactions, reflections, and outcomes are analysed as trace data to inform group formation, role awareness, and social support. The findings advance learning analytics by demonstrating how generative AI can serve as both a source of learner traces and an analytical instrument to enhance collaborative learning online.

Sonita Te

Le Mans University, France

Beyond the Grade: A Data-Driven Approach for Student Competency Profile Analysis

[Homepage] [LinkedIn] [Google Scholar]



Summative grades fail to capture the development of essential transversal competencies like digital skills. This research addresses this gap by designing and validating a novel hybrid assessment model that integrates Learning Analytics (LA), AI, and a human-in-the-loop framework. Grounded in the standardized DigComp framework, the model automatically generates student competency profiles from educational artifacts. Developed and validated in diverse educational contexts (Cambodia and France), this approach ensures generalizability. The resulting profiles aim to provide students with actionable feedback to support self-regulated learning

and offer educators a robust tool to inform pedagogical instruction, bridging the gap between classroom assessment and real-world skills.

Luis Porras

Queensland University of Technology, Australia

Solving Educational Problems of Practice in Blended Learning Environments Using Learning Analytics

[Homepage] [LinkedIn] [Google Scholar]



This doctoral research explores how university educators can collaboratively design learning analytics (LA) tools that enhance reflective practice and pedagogical decision-making in blended learning environments (BLE). Guided by social constructivism and the theory of reflective practice, the study adopts an Educational Design Research (EDR) methodology to investigate how co-design processes enable educators to identify and address authentic problems of practice (PoP). Through participatory workshops and follow-up interviews with university instructors at Queensland University of Technology (QUT), the project aims to generate a conceptual framework and design principles for developing data-informed tools that are pedagogically meaningful and grounded in real teaching contexts. By situating LA within collaborative design and professional reflection, this study contributes to the advancement of human-centred, theory-informed analytics that support educators in improving teaching quality and student learning outcomes.

Volkan Yücepur

FernUniversität in Hagen, Germany

Feedback for Collaborative Academic Writing: A Learning Analytics Approach using Weiner's Attribution Theory

[Homepage] [LinkedIn] [Google Scholar]



Higher education often includes mandatory collaborative learning activities aimed at improving academic writing skills. In practice, social conflicts within groups can reduce group cohesion and negatively impact the motivation to collaborate and hinder students' learning. Students' explanations of group failure, known as causal attributions, can differ between individuals and influence their motivation to overcome such challenges. Weinerís attribution theory has helped improve educational practices by clarifying the impact of causal attributions on social motivation. Learning analytics (LA) offer great potential to support groups through feedback based on digital traces. This doctoral project aims to connect LA-based feedback for collaboration with attribution theory to foster group cohesion. First, a study will be conducted to

understand studentsí feedback needs during collaborative writing and to design indicators and feedback. Second, LA-based feedback will be implemented and piloted. Third, a randomized experiment is planned to evaluate the impact of LA-based feedback on group cohesion.

Nicola McDowell

The Open University, UK

Using Learning Analytics in Practice: How online teachers in Higher Education respond to predictive data and support students at risk

[Homepage] [LinkedIn] [Google Scholar]



Predictive Learning Analytics (PLA) providing actionable intelligence about studentsí learning progress in their studies has the potential to help universities support student success. Learning Analytics Dashboards (LADs) use descriptive analytics to provide snapshots of studentsí learning progress and predictive analytics to predict student failure and indicate when teacher intervention may be appropriate. This qualitative doctorate study seeks to understand how distance learning university teachers adapt their teaching practice in response to PLA data on a teacher facing dashboard to support students at risk. Using semi structured interviews, online teacher accounts of their support strategies following use of PLA in practice are explored. The findings will examine teacher practice in response to PLA data and explore teachers' perceptions of the success of these support strategies following access to PLA.

Jacob Puthipiroj

Northwestern University, USA

Learning in Quizbowl as Graph Traversal

[Homepage] [LinkedIn] [Google Scholar]



This research explores quizbowl, a competitive academic trivia game, as a distinctive environment for studying retrieval-based learning within a well-defined knowledge domain. By analyzing over 300,000 questions from 600 tournaments across 36 subjects, knowledge graphs are constructed to model learning as a dynamic graph traversal process, capturing how players deepen their understanding by progressively revisiting key topics throughout their quizbowl careers. These graphs are then leveraged to generate high-quality flashcards aligned with spaced repetition principles, enabling a personalized and data-driven approach to skill development and knowledge retention. Furthermore, player progress is analyzed through multimodal analytics,

incorporating behavioral data such as speech, gestures, and facial expressions during team interactions to yield deeper insights into the cognitive and collaborative processes that underlie knowledge acquisition.

Daiana Rinja

FernUniversität in Hagen, Germany

Pedagogical Conversational Agents to Support Self-Regulated Learning in R Programming

[Homepage] [LinkedIn]



This doctoral project investigates how pedagogical conversational agents (PCAs) can foster self-regulated learning (SRL) in higher education. AI tools often boost short-term performance but may also lead learners to offload critical metacognitive processes. Addressing this tension, this doctoral project examines how PCAs can be designed to support learners by leveraging the full SRL cycle - forethought, performance, and reflection - rather than narrowly facilitating task completion. The research proceeds in three phases: (1) a systematic literature review that derives design principles to support full-cycle SRL, (2) a formative phase consisting of prototyping and lab studies in introductory R programming, during which phase-aligned SRL indicators are identified from multimodal interaction data and (3) a summative, semester-long deployment in authentic coursework to model within-student SRL development over time. The expected contribution is an integrated design and measurement framework that advances PCA development and LA-informed understanding of SRL in higher education.

Toni Earle-Randell

University of Florida, USA

Fostering Collaborative Skills in K-12 Students through Agent-Guided Reflection

[Homepage] [LinkedIn] [Google Scholar]



Collaborative problem-solving (CPS) is a critical 21st-century skill. Despite evidence from a decade ago (PISA 2015 assessment) highlighting a global deficiency in collaborative problem-solving ability amongst K-12 students, there remains a shortage of structured approaches designed to develop effective CPS skills. A substantial body of prior work suggests virtual agents are effective for teaching and supporting interpersonal skills such as collaboration. However, my systematic review of 55 studies revealed that agent-based support for reflection is underexplored. This proposed doctoral research addresses this gap by designing, developing, and evaluating a novel near-peer virtual agent that facilitates individual, weekly reflection

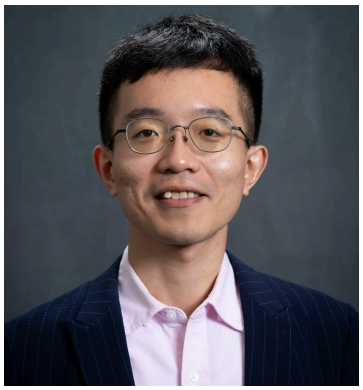
sessions with K-12 students on robotics teams. Grounded in Experiential Learning Theory, the agent will guide students through structured reflection after collaborative work. My dissertation investigates how agent-guided reflection impacts collaborative dialogue patterns and improves overall collaborative competency.

Yumou Wei

Carnegie Mellon University, USA

Supporting Data-Driven Mastery Learning at Scale

[Homepage] [LinkedIn] [Google Scholar]



An overarching goal of learning analytics is to provide personal support for every student. This vision, however, is often obstructed by the lack of an integrated system that estimates a studentís proficiency in real time and implements adaptive interventions at scale. My dissertation aims to delineate a research program to develop an AI-powered learning analytics platform that supports scalable mastery-learning strategies. Given a subject that one is interested in learning, the system will plan an adaptive curriculum by constructing a knowledge component (KC) model of the subject and generating relevant practice questions, and guide the student to mastery. The system tracks the studentís proficiency in real time and uses data to optimize the learning experience. The core modules of this system include: (1) a real-time, longitudinal tracking engine to assess proficiency, (2) an automated method to extract KCs from unstructured questions, and (3) a question-generation pipeline to produce high-quality questions that assess specific KCs.

Yuanru Tan

University of Wisconsin-Madison, USA

Epistemic Trajectory Modeling: A Method for Modeling, Visualizing, and Comparing Learning Processes

[Homepage] [LinkedIn] [Google Scholar]



This dissertation develops Epistemic Trajectory Modeling (ETM), a method that addresses a longstanding challenge in learning analytics: how to represent temporality in process data without reducing learning to a series of discrete events. ETM models, visualizes, and compares learning as a continuous process of conceptual change. Unlike approaches that require researchers to predefine critical time points, ETM allows transitions to emerge directly from the data to reveal when changes occur, how they unfold, and what they signify. It integrates smoothing techniques from time-series analysis, dimensionality reduction, curve fitting, and trajectory-comparison metrics to generate mathematically rigorous yet interpretable visualizations – both static and dynamic – of learning processes.

ETM contributes to the field of learning analytics by (1) providing methodological infrastructure for analyzing high-dimensional temporal data, (2) bridging network-based and trajectory-based approaches to modeling learning, and (3) enabling the study of meaning-rich learning trajectories at scale.

Jianjun Xiao

Beijing Normal University, China

Modeling Collaborative Problem Solving Dynamics from Group Discourse: A Text-Mining Approach with Synergy Degree Model

[Homepage] [LinkedIn] [Google Scholar]



Measuring collaborative problem solving (CPS) synergy remains challenging in learning analytics, as traditional manual coding cannot capture emergent system-level dynamics. This doctoral research introduces a computational framework integrating automated discourse analysis with the Synergy Degree Model (SDM) to quantify CPS synergy from group communication. Data from 52 learners in 12 groups during a 5-week cMOOC activity were analyzed using nine classification models to automatically identify CPS behaviors across four interaction levels. BERT achieved highest accuracy (0.507±0.029), while GPT models demonstrated superior precision (0.539±0.004) for human-AI collaborative coding. Statistical analyses revealed significant task-type differences and synergy degreeís ability to distinguish collaborative quality. Current work focuses on validating the framework across diverse educational contexts and developing real-time feedback mechanisms. This research contributes to learning analytics by establishing synergy degree as a sensitive indicator of collaboration and demonstrating AI-in-the-loop approaches for scaling fine-grained CPS analytics.

Seehee Park

University of California Irvine, USA

Modeling Affective Trust in Human-AI Collaboration: Integrating Perceptions and Discourse in Collaborative Problem Solving

[Homepage] [LinkedIn] [Google Scholar]



This dissertation investigates how affective trust is developed and expressed in human-AI collaborative problem solving (CPS). While prior research on trust in AI has emphasized cognitive dimensions such as competence and reliability, affective trust, the sense of emotional safety, care, and inclusion remains understudied despite its importance for collaboration. To address this gap, I draw on two complementary approaches. The first study proposes to use pre- and post-task surveys to examine how perceptions of affective trust differ between human-only and human-AI

teams, and how these perceptions relate to CPS performance. The second study shifts focus to team communication, applying computational discourse analysis (LIWC, sentiment analysis) to investigate how emotional patterns in dialogue signal affective trust and connect to collaboration outcomes. Together, these studies combine subjective and behavioral measures to model affective trust in educational human-AI teams. Findings aim to inform the design of AI teammates that foster inclusive, equitable collaboration.

Detailed Schedule

Lightning presentations

This activity will be organized as a series of *lightning talks* where each doctoral student will be given *up to 3 minutes* to present the poster they have prepared for the poster session. The objective is to provide peers with feedback on their poster presentation pitch, thus helping them make any further improvements in how they will present their posters, during the LAK poster session.

Careers Panel

A panel representing different careers in the field will share a bit about what their jobs are like, why they went the route they did, and what they look for when hiring. You can also ask about how the LAK field and community works, and anything else about your future career. We're delighted that joining the DC co-chairs we have the following special guests!...



Prof Kirsty Kitto, SLATE, University of Bergen



Dr Abhinava Barthakur, C3L, Adelaide University



Øystein Nordberg, Midlaier



Prof. Dr. Sasha Poquet, Technical University of Munich

Peer advice blocks

Are you facing a challenging problem or blockage in your PhD journey? This is an activity meant to help doctoral students solve a specific problem or dilemma they have about their PhD research (or career). It follows a structured collaboration script designed to maximize the number of potential solutions to the problem and to give everyone a voice in trying to solve the problem. The activity is set up by having one doctoral student (the problem-poser) select and volunteer a problem, and several advisors (normally 4-6 people, both peer doctoral students and DC chairs) that will try to help the problem-poser.

The script of the activity roughly goes like this:

1. The "problem-poser" describes the situation and context of the problem (informally, no slides needed), and why they think they have the problem → the "advisors" take notes in silence (5-10 min)
2. The "advisors" make clarificatory questions to get a better idea or probe initial hypotheses… but do not give advice yet! (5 min)
3. The "advisors" reflect and write privately ideas for advice and suggestions to solve the problem (5 min)
4. The "advisors" select the 1-2 most relevant pieces of advice and put them as post-its in the whiteboard, explaining them briefly → the "problem-poser" receives them without arguing back (10 min)
5. The "advisee" gives feedback about which pieces of advice are most interesting/surprising/likely to work, and writes down post-its with the next actions that they're going to take to make progress again (5-10 min)

Paper workshop blocks

Are you working on a paper (or dissertation chapter) and want some feedback? This is an activity meant for the doctoral students to get deep feedback and help them improve a paper manuscript or other piece of writing related to their dissertation (e.g., a rejected LAK submission, an upcoming journal paper, etc.). For this structured collaborative discussion, students will be placed in groups with other students with topically related research.

A fair bit of **preparation is required** before the live event, in particular:

a) The **student shares the document** *in advance* of the session with the "critical friends", that is, other students with topically related research and thus are well positioned to provide help
b) The **critical friends read the text** *in advance* of the event (no slide presentation of the paper will be done, only a brief summary)

At the event, a paper workshop block will follow the following script:

1. ***Introduction***: A DC chair will be the moderator and will introduce the work at hand and the author.
2. ***Presentation***: The author reads a short piece of their work, for example, the abstract.

3. ***Summaries***: The moderator asks one or more of the critical friends to give a short summary of the paper.
4. ***Confirmation***: The author is asked if the readers (critical friends) have understood the contents of the paper. If readers have misunderstood the paper, the author can give some guidance.

[From now on, the author won't be involved in the discussion. The author will make notes for themself.]

5. ***Positive feedback***: Each critical friend says which parts of the paper they especially like and what the author should definitely keep in their work. Other especially good aspects of the work are discussed, as well.
6. ***Suggestions for improvement***: This phase typically follows the order dictated by the moderator. For example: general comments (readability, structure), background, methodology, contribution, next steps. Different participants may have conflicting opinions on how the work could be improved (e.g., some might consider that a section should not be changed, whereas another participant might suggest removing it). In many cases this reveals new viewpoints to the work and is a valuable input for the author.
7. ***Summary of discussions***: The moderator asks one critical friend to summarize the main points of the discussion, including both positive feedback and suggestions.

[The author is involved again in the discussion.]

8. ***Questions***: The author is given an opportunity to ask questions for clarification (e.g. "What did you mean when you said…", "This …. remained unclear as the discussion moved on"). The purpose is to get clarifications, not to comment on the improvement suggestions, explain, or present excuses.
9. Thanking the author.

After the DC, the author decides on how to improve their paper based on the received feedback.

Speed Mentoring

This will be a unique and engaging session where students will have the chance to connect with leading scholars in the field in a fast-paced and dynamic format.

Students will share their research in 30-60 seconds (essentially an 'elevator pitch') and receive diverse perspectives, constructive feedback on their research ideas, and the opportunity to refine their elevator pitches in a supportive setting.

We are grateful to our 'elevated' team of mentors!…

1. Abhinava Barthakur (Adelaide University)
2. Carolyn Rose (Carnegie Mellon University)
3. Guanling Chen (Monash University)
4. John Stamper (Carnegie Mellon University)
5. Kirsty Kitto (University of Bergen)
6. Maren Scheffel (Ruhr Universität Bochum)
7. Mohammed Saqr (University of Eastern Finland)

8. Mutlu Cukurova (University College London)
9. Paul Prinsloo (University of Bergen/University of South Africa)
10. Rebecca Ferguson (The Open University)
11. Sarah Howard (University of Leeds)