

ICCBR 2016 Workshop

Computational Analogy

Call for Papers

Description

Computational Analogy and Case-Based Reasoning (CBR) are closely related research areas. Both employ prior cases to reason in complex situations with incomplete information. Analogy research often focuses on modeling human cognitive processes, the structural alignment between a base/source and target, and adaptation/abstraction of the analogical source content. While CBR research also deals with alignment and adaptation, the field tends to focus more on retrieval, case-base maintenance, and pragmatic solutions to real-world problems. However, despite their obvious overlap in research goals and approaches, cross communication and collaboration between these areas has been progressively diminishing. CBR and Analogy researchers stand to benefit greatly from increased exposure to each other's work and greater cross-pollination of ideas. The objective of this workshop is to promote such communication by bringing together researchers from the two areas, to foster new collaborative endeavors, to stimulate new ideas and avoid reinventing old ones.

Topics of Interest

Topics of interest include, but are not limited to:

- General analogical reasoning techniques
 - Adaptation
 - Alignment-based explanation/evaluation
 - Analogical distance
 - Analogical proportions in formal concept analysis
 - Analogical proportions in mathematical structures
 - Analogy in numerical settings
 - Compound analogy
 - Constructing alignments and mappings
 - Feature-based models of analogy and analogical reasoning
 - Logic-based models of analogy and analogical reasoning
 - Modality of representation of case/analogical source
 - The role of expertise in analogical reasoning
 - Segmenting and constructing cases for alignment
 - Solution-based vs. Problem-based approaches
 - Structural models of analogy and analogical reasoning
 - Types of analogical transfer/mapping
- Analogical retrieval
 - Data mining techniques
 - Data sources for cases/analogy
 - Feature-based vs. structural retrieval

- Indexing
- Repository-based approaches
- Analogical generalization
 - Analogical abstraction
 - CBR and Analogy using generalizations or schemas
 - Constructing generalizations
 - Cross-discipline translation of concepts/vocabulary
- Applications: Computational Analogy for...
 - Cognitive Modeling
 - Computational Creativity
 - Computational Design
 - Decision-making for robotics or virtual agents
 - Knowledge capture
- Frontiers in Computational Analogy
 - Assessing models of Computational Analogy
 - Connections to Professional Practice in Engineering and Design
 - Hybrid models
 - Theoretical foundations of Computational Analogy

Participation

The workshop will be held on October 31st, 2016, as part of the ICCBR 2016 workshop series in Atlanta, Georgia. The workshop is open to all interested conference participants, though available space may set an upper limit on attendance.

We welcome longer submissions (up to 10 pages), as well as shorter submissions for work in progress or position papers. The Program Committee will select amongst the submitted papers for oral presentation and/or poster presentation. In addition, Dr. Ashok Goel of Georgia Tech and Dr. Ken Forbus of Northwestern University, senior members of the Computational Analogy research community, will discuss their work and how it relates to the larger field of CBR. There will be a panel discussion of the shared future of Computational Analogy and Case-Based Reasoning, and how to achieve that future.

For specific questions, please contact co-chair Joseph Blass.

Submissions

Paper submissions should be formatted using the ICCBR Conference format, but with a maximum of 10 pages in length (including references). Shorter submissions (max 5 pages), such as work in progress or position papers, are also welcome. Authors will be required to submit their papers through the workshop submission website. Papers will be reviewed by qualified reviewers drawn from the workshop's Program Committee. We also encourage those who do not want to submit a paper to attend, as one of the primary goals of the workshop is to foster greater communication and cross-pollination of ideas amongst Computational Analogy and CBR researchers.

Website

The workshop website can be found at qrg.northwestern.edu/CA16.

Important Dates

NOTE: Dates are subject to change to meet ICCBR-16 workshop proceedings deadline

August 1st, 2016: Workshop paper submission deadline

August 22nd, 2016: Acceptance decisions announced

August 29th, 2016: Camera-ready submission due

October 31st, 2016: Workshop (Atlanta, Georgia, USA)

Organizing Committee

Joseph Blass (joebllass@u.northwestern.edu), Northwestern University (USA) (Co-Chair)

Tesca Fitzgerald (tesca.fitzgerald@cc.gatech.edu), Georgia Institute of Technology (USA) (Local Co-Chair)

Katherine Fu (kfu@me.gatech.edu), Georgia Institute of Technology (USA)

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Program Committee

Fadi Badra (Université Paris 13)

Tarek Besold (Free University of Bozen-Bolzano)

Mark Burstein (SIFT)

Hernan Casakin (Ariel University)

Amareesh Chakrabarti (Indian Institute of Science)

Joel Chan (Carnegie Mellon University)

William Correa (IRISA)

Mark Finlayson (Florida International University)

Scott Friedman (SIFT)

Bipin Indurkha (Jagiellonian University)

Mark Keane (University College Dublin)

Kai-Uwe Kuehnberger (University of Osnabrück)

Philippe Langlais (Université de Montréal)

Yves Lepage (Waseda University)

Ramon Lopez de Mantaras (IIIA-CSIC)

Abhijit Mahabal (Google)

Art Markman (University of Texas – Austin)

Clifton McFate (Northwestern University)

Melanie Mitchell (Portland State University)

Jacquelyn Nagel (James Madison University)

Gilles Richard (IRIT – Université Paul Sabatier)

Emmanuel Sander (Université Paris 8)

Steven Schockaert (Cardiff University)

Christian Schunn (University of Pittsburgh)

Ute Schmid (University of Bamberg)

Bryan Wiltgen (Georgia Institute of Technology)

Patrick Winston (Massachusetts Institute of Technology)

François Yvon (LIMSI)

Marc Weissburg (Georgia Institute of Technology)