

Preface

ICBO 2022: International Conference on Biomedical Ontology

September 25-28, 2022, Ann Arbor, MI, USA

[\(ICBO 2022 website\)](#)

The 13th International Conference on Biomedical Ontology (ICBO 2022), was held at the University of Michigan, Ann Arbor, MI, USA, part of the “Michigan Week of Ontology and Semantic Web” in conjunction with the [4th U.S. Semantic Technologies Symposium \(US2TS\)](#), held September 29 - October 1, 2022, at Michigan State University, East Lansing, MI.

ICBO 2022 was well attended, with 67 registered in person attendees, 145 registered virtual attendees, and additional walk-ins from the local academic community. The program included excellent keynote talks by Chris Stoeckert (University of Pennsylvania) “Striving for semantic harmony across datasets, communities, and real-world data,” and Susan Gregurick (Director of the Office of Data Science Strategy, National Institute of Health), “The Importance of Ontologies to Connect Data, Enhance Software, and Create a Data and Digital Health Ecosystem.” In addition, Jobst Landgrebe and Barry Smith gave an invited presentation on “Perspectives on machine learning,” and Robert Hoerndorf gave an invited talk on “The coevolution of ontologies and knowledge-based analytics in bioinformatics.” Xiaolin Yang introduced the “CCBOT 2022: Chinese Conference on Biomedical Ontology and Terminology,” an ontology conference in China that included virtual participation in some ICBO 2022 sessions. In all, the ICBO 2022 program had 22 oral presentations and 21 posters and one software demo. Finally, ICBO 2022 hosted a two-hour OBO Foundry Community Townhall, for discussion on the future structure of the OBO Foundry and its role in the biomedical ontology community.

There were 39 papers and abstracts submitted for peer-review to ICBO 2022. Each submission was reviewed by three members chosen from the Program Committee. Of these submissions, 34 were accepted for this volume: 15 full papers and 19 poster abstracts. We thank our program committee for their thoughtful reviews. We also have included 2 short papers from our invited talks. There were also 7 workshops and 2 tutorials (listed below) held in conjunction with the main ICBO 2022 meeting, with their own peer review processes. Three full workshop papers and one workshop abstract are published in these proceedings as well.

Poster Awards

First Place: “Ontological analysis of collection improves classification of cardinality phenotypes”

Sarah Alghamdi and Robert Hoehndorf

Second Place: “The Protein Conformation Ontology”

Morgan Mitchell, Lauren Wishnie and Alexander D. Diehl

Third Place: “OBO Academy: Training materials for bioontologists”

James A. Overton, Rebecca Jackson, Sabrina Toro, Shawn Tan, Bradley Varner, David Osumi-Sutherland, Nicolas Matentzoglou and Nicole Vasilevsky

Acknowledgements

The organizers would like to thank the Unit for Laboratory Animal Medicine (ULAM), Department of Computational Medicine and Bioinformatics (DCMB), and Michigan Institute for Data Science (MIDAS), University of Michigan Medical School, Ann Arbor, MI, USA, for their support and organizational help, especially Stella Zhou, Kadi Brinson, Valerie Hill, William King, and Aaron Bookvich. We also appreciate the volunteer support from Anthony Huffman, Yuying Tian, Fatima Oudeif, Sam Smith, and Alice Augustine. We thank the Michigan League in the University of Michigan for providing the meeting venue, food, and hosting.

We would also like to thank the work of the Organizing Committee and the Program Committee for ICBO 2022, as well as our invited speakers.

Organizing Committee of ICBO 2022

Yongqun "Oliver" He, Ph.D.	University of Michigan
Alexander D. Diehl, Ph.D.	University at Buffalo
Asiyah Yu Lin, Ph.D.	National Institutes of Health
Sivaram Arabandi, MD	Ontopro
William D. Duncan, Ph.D.	University at Florida
Hande Küçük McGinty, Ph.D.	Kansas State University

ICBO Series Founder

Barry Smith, Ph.D.	University at Buffalo
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ICBO 2022 Proceedings Editors

Alexander D. Diehl, Ph.D.	University at Buffalo
Yongqun "Oliver" He, Ph.D.	University of Michigan
William D. Duncan, Ph.D.	University at Florida

Keynote Speakers

Chris Stoeckert	University of Pennsylvania
Susan Gregorick	National Institutes of Health

Invited Talks

Jobst Landgrebe	Cognotekt GmbH and University at Buffalo
Barry Smith	University at Buffalo
Robert Hoerndorf	King Abdullah University of Science and Technology

Program Committee

	(all affiliations as of 2022)
Sarah Alghamdi	King Abdullah University of Science and Technology
Mauricio Almeida	Universidade Federal de Minas Gerais
Muhammad Amith	University of Texas Health Science Center at Houston
Sivaram Arabandi	Ontopro
Adrien Barton	IRIT, CNRS
John Beverley	University at Buffalo
Jonathan Bona	University of Arkansas for Medical Sciences
Werner Ceusters	University at Buffalo

Alexander D. Diehl	University at Buffalo
Michel Dumontier	Maastricht University
William Duncan	University of Florida
Fernanda Farinelli	Universidade Federal de Minas Gerais
Pierre Grenon	National Center for Ontological Research
Emma Griffiths	Simon Fraser University
Oliver He	University of Michigan
Karl Helmer	Harvard Medical School
William Hogan	University of Florida
Charles Hoyt	Harvard Medical School
Jungkuk Hur	University of North Dakota
Azanzi Jiomekong	University of Yaounde I
Clement Jonquet	University of Montpellier - LIRMM
Asiyah Lin	National Institutes of Health
Jane Lomax	SciBite
Phillip Lord	Newcastle University
Hande McGinty	Collaborative Drug Discovery
Darren Natale	Georgetown University Medical Center
Suyuan Peng	Peking University
Anuwat Pengput	University at Buffalo
Bjoern Peters	La Jolla Institute for Immunology
Lynn Schriml	University of Maryland
Barry Smith	SUNY Buffalo
Amanda Damasceno De Souza	Universidade Federal de Minas Gerais
Chris Stoeckert	University of Pennsylvania
Sabrina Toro	University of Colorado Anschutz Medical School
Randi Vita	La Jolla Institute for Immunology
Enrique Wulff Barreiro	Spanish Council for Scientific Research
Chen Yang	BASF
Yuji Zhang	University of Maryland School of Medicine
Jie Zheng	University of Pennsylvania

Workshops associated with ICBO 2022

Financial and Legal Dimensions of Healthcare

Organizers: Barry Smith and William Hogan

Presentations: [Google Drive](#)

The 6th International Cells in Experimental Life Science Workshop, CELLS 2022

Organizers: Alexander D. Diehl and Yongqun He

Website: <https://sites.google.com/view/cells-2022-workshop/home>

YouTube: <https://www.youtube.com/watch?v=s1ALmY3xxec>

FAIR ontology harmonization and TRUST data interoperability (FOHTI)

Organizers: Asiyah Yu Lin, Gary Berg-Cross, Nomi Harris

Website: [FOHTI-22](#)

Workshop on Ontology Tools and Workflows

Organizers: James A. Overton, Charles Tapley Hoyt and Christopher J. Mungall

Website: [ICBO 2022 Workshop on Ontology Tools and Workflows](#)

11th Vaccine and Drug Ontology Studies (VDOS-2022)

Organizers: Junguk Hur, Cui Tao and Yongqun He

Website: <https://sites.google.com/view/vdosworkshop/vdos-2022>

YouTube: <https://www.youtube.com/playlist?list=PLhzFEi0G-n-sdlkToWTdfqWLAqvcjGa6w>

Food Process Ontology Hackathon

Organizers: Damion Dooley, Tarini Naravane, Matthew Lange, Chen Yang and Hande Küçük

McGintyWebsite: <https://foodon.org/food-process-ontology-hackathon-icbo-2022/>

First Workshop on the Role of Ontologies in Biomedical AI (ROBI)

Organizers: Robert Hoehndorf and George Gkoutos

Website: <https://bio-ontology-research-group.github.io/icbo-2022-ml-workshop/>

Tutorials associated with ICBO 2022

OBO Tutorial: Using and Reusing Ontologies

Organizers: James A. Overton, Rebecca Jackson, Chris Mungall, Nicole Vasilevsky, Nicolas Matentzoglou and Randi Vita

Website: <https://oboacademy.github.io/oobook/courses/icbo2022/>

LinkML Workshop/Tutorial

Organizers: Christopher Mungall, Sierra Moxon, Mark Miller, Nomi Harris and Tim Putnam

Website: [Google Doc](#)

YouTube: <https://youtu.be/1ukQ7yXdlWc>