

# Monday 23

	Hörsaal 3	Hörsaal 4	Hörsaal 5	AULA
8:15-8:45				Registration
8:45-9:00				Opening (AULA)
9:00-10:00	<b>Keynote: Antony Galton – Theories of Time and Temporality: A Guided Tour for Ontologists (AULA)</b>			
10:00-11:00	<b>DAO-SI – Data meets Applied Ontologies in Open Science and Innovation</b> – Chair A. Mosca  J.S. Hughes et al. – <i>An Ontology-Mediated Space Science Digital Repository</i>  M. Wajnberg et al. – <i>Concept Analysis-Based Association Mining From Linked Data: A Case In Industrial Decision Making</i>	<b>WODHSA – First International Workshop on Ontologies for Digital Humanities and their Social Analysis</b> – Chair: R. Ferrario  M.R. Stufano Melone – <i>Towards an ontology for music and aesthetics</i>  S. Cristofaro & D. Spampinato – <i>OntoBellini: towards an RDA based ontology for Vincenzo Bellini's cultural heritage</i>	<b>BOG – 2nd International Workshop on Bad Or Good Ontology</b> – Chair: F. Neuhaus  G.A. Braun et al. – <i>Taking Advantages of Automated Reasoning in Visual Ontology Engineering Environments</i>  T. Musgrove & R. Walsh – <i>Remediating intentionally corrupted ontology-based data sets</i>	<b>FOUNT Tutorial – Towards a systematic methodology for foundational ontologies: properties, relations, and truthmaking</b> N. Guarino, G. Guizzardi, D. Porello Well-founded ontologies have a double role in the practice of ontology design. On one hand, they intend to make the modeller's basic choices and assumptions clear: this is all about intended models, which need to be suitably characterized by means of logical axioms.
	Coffee Break			
11:30-12:30	<b>DAO-SI</b> – Chair A. Mosca:  G. A. Braun et al. – <i>Towards All-In-One OBDA Systems</i>	<b>WODHSA</b> – Chair: L. Jansen  F. Toyoshima – <i>Ontology of Time for the Digital Humanities: A Foundational View</i>  R.D.J. Gil-Herrera et al. – <i>Building a Knowledge-Model about Land Restitution Policy in Colombian-case: Applying a Systemic Ontological Methodology</i>	<b>BOG</b> – Chair: O. Kutz  F. Neuhaus et al. – <i>Generic Ontology Design Patterns at Work</i>  S. Schindler & J. M. Keil – <i>Building Ontologies for Reuse – Lessons Learned from Unit Ontologies</i>	<b>FOUNT Tutorial</b> (continued)  ... On the other hand, they intend to make such basic choices justified and sharable among a community of users, by relying on a formal analysis of the nature and structure of the world, in terms of very general categories and relations, like object, property, relation, event, time, space, quality, modality, disposition, and so on.
	Lunch Break			
14:00-16:00	<b>WOMoCoE – 4th Intl. Workshop on Ontology Modularity, Contextuality, and Evolution</b> – Chair: L. Bozzato  Keynote: R. Hoehndorf – <i>Evaluating ontology modules from the perspective of machine learning</i>  P. Rodler & M. Eichholzer – <i>How You Ask Matters: A Simple Expert Questioning Approach for Efficient Ontology Fault Localization</i>  M. Codescu et al. – <i>Extensions of Generic DOL for Generic Ontology Design Patterns</i>	<b>WODHSA</b> – Chair: E. Sanfilippo  L. Jansen – <i>Ontologies for the Digital Humanities: Learning from the Life Sciences?</i>  S. Winslow et al. – <i>Ontologies in the Digital Repository: Between metadata integration, knowledge management and ontology-driven applications</i>  C. Roche & M. Papadopoulos – <i>Mind the gap: ontology authoring by Humanists</i>  P. Sheridan et al. – <i>The Literary Theme Ontology for Media Annotation and Info</i>	<b>CAOS IV – Cognition And Ontologies</b> – Chair: G. Righetti  M. Fumagalli & R. Ferrario – <i>Representation of Concepts in AI: Towards a Teleological Explanation</i>  L. Biccheri & R. Ferrario – <i>An analysis of the notion of need for the representation of public services</i>  F. Toyoshima & A. Barton – <i>Linking Image Schemas with Affordances: An Ontological Approach</i>  D. Gromann & J. C. Macbeth – <i>Towards Modeling Conceptual Dependency Primitives with Image Schema Logic</i>	<b>FOUNT Tutorial</b> (continued)  ...Nowadays, these general notions are systematized in top-level ontologies (such as DOLCE, BFO and UFO), which have been constructed by means of a tight confrontation with the literature in linguistics, cognitive science, logic, and analytic philosophy, and provide a well-developed theory for comprehending and justifying the modeller's ontological choices. Still, even when a single top-level ontology has already been adopted, there is however a gap between top-level and core domain ontologies, since no clear methodology helps in making the basic decisions concerning the nature of the domain of discourse and the basic axiomatization choices.
	Coffee Break			
16:30-17:00	<b>WOMoCoE</b> – Chair L. Bozzato  F. Toyoshima – <i>Contexts: A Grounding Perspective</i>  F. Giunchiglia & M. Fumagalli – <i>On Knowledge Diversity</i>	<b>WODHSA</b> – Chair: M. Nicolosi-Asmundo  J. Hastings & S. Schulz – <i>Representing Literary Characters and their Attributes in an Ontology</i>	<b>CAOS IV</b> – Chair: O. Kutz  M. Vacura – <i>Towards New Ways of Modeling Deontic Concepts in Ontologies</i>	<b>FOUNT Tutorial</b> (continued)  ...In this tutorial, we develop a systematic methodology for identifying what to put in the domain of discourse, by articulating a comprehensive theory of refication and truth-making. We apply this methodology to the systematic ontological analysis of sentences containing unary predicates (properties) and n-ary predicates (relations), based on a re-visitaton of the notion of individual qualities (common to DOLCE, BFO and UFO) as "weak truthmakers", and their role in accounting for properties, relationships, events.
17:00-18:30	<b>SIG IAOA: AOIS</b>  Kick-off Meeting of the "new" IAOA Special Interest Group on Applied Ontology in Industry and Standards	I. Frank – <i>Multi-Perspectival Representation of Historical Reality: Ontology-Based Modeling of Non-Common Conceptualizations</i>  C. Masolo et al. – <i>Modeling concept drift for historical research in the digital humanities</i>	D. Gromann & A. Gangemi – <i>Analyzing the Imagistic Foundation of Framality via Prepositions</i>	
19:00-20:00	<b>Welcome Reception – Orangerie Graz – Stadtpark 2, 8010 Graz – Tram #7 (→ Wetzelsdorf) until Maiffredygasse 7 min</b>			

# Tuesday 24

	Seminarraum 04 (1 <sup>st</sup> floor)	Hörsaal 3	Hörsaal 4	Hörsaal 5	AULA
8:30-9:00					Registration
9:00-10:00	<b>Keynote: Yongsheng Gao – Insights into large-scale ontology production (AULA)</b>				
10:00-11:00	<b>WINKS-2 – 2<sup>nd</sup> Workshop on Interaction-Based Knowledge Sharing</b> – Chair: D. Gromann  J. Euzenat – <i>Replicator-interactor in experimental cultural knowledge evolution</i>  A. Smirnov et al. – <i>Human-Machine Collective Intelligence for Decision Support</i>	<b>TLO – Top Level Ontologies – Tutorial</b> B. Smith, M. Gruninger, A. Ruttenberg  This tutorial will provide an introduction to ISO/IEC:21838 Top-Level Ontologies, a multi-part international standard currently in the final stages of review. Part 1 of the standard lays down the definition of 'top-level ontology' and a statement of the requirements to be satisfied by any ontology claiming to be conformant to this definition.	<b>SoLEE – Ontology of Social, Legal and Economic Entities</b> – Chair: G. Guizzardi  G. Guizzardi – <i>Introduction</i> M. Ghosh & H. Abdulrab – <i>Towards a Well-Founded Legal Domain Reference by Combining Conceptual Ontology Patterns</i> (short paper)  M.A. Khalidi – <i>Law as a Social Kind</i>	<b>SNOMED CT – Tutorial</b> S. Schulz, Y. Gao, S. Sabutsch, N. Sjenic  The international standard SNOMED CT, an ontology-based clinical terminology is increasingly used to support interoperability in health care. With about 350,000 classes and a rich set of axioms conforming to OWL-EL profile it is probably the world's largest ontology. However, many legacy issues prevail, and collaboration with the Applied Ontology community is of great value for quality improvement and ontological well-formedness.	
	Coffee Break				
11:30-12:30	<b>WINKS-2</b> – Chair: D. Gromann Michael Gruninger – <i>Ontology Validation as Dialogue</i> K. Adrian & E. Plaza – <i>Argumentation on Meaning: a Semiotic Model for Contrast-Sets Alignment</i>	<b>TLO Tutorial</b> (continued) Part 2 documents Basic Formal Ontology (BFO) in light of the requirements stated in Part 1. Proposals are envisaged for further parts, including a DOLCE specification, and a specification of a potential ISO upper level ontology.	<b>SoLEE</b> – Chair: D. Porello F. Toyoshima – <i>Representing Value</i> S. Nishimura & K. Fukuda – <i>Prototyping a taxonomy of value types</i>	<b>SNOMED CT Tutorial</b> (continued) This tutorial will present SNOMED CT to the typical audience of JOWO, but is also open for implementers and potential users. It encompasses SNOMED CT's architectural principles and design patterns, foundational issues like implicit and explicit upper-level assumptions, the dealing with epistemic aspects, interfacing with other ontologies etc.	
	Lunch Break				
14:00-15:00	<b>MLWo Tutorial – Semantic similarity and machine learning with ontologies</b> R. Hoehndorf, M. Kulmanov  Ontologies have long provided a core foundation in the organization of domain knowledge and are widely applied in several domains. With hundreds of ontologies currently available and large volumes of data accessible through ontologies, there are a number of new and exciting opportunities emerging in using ontologies for data analysis and predictive analysis.	<b>FOMI – 10<sup>th</sup> International Workshop on Formal Ontologies meet Industry</b> – Chair: M. Gruninger  H. Tan et al. – <i>Lessons Learned from an Application of Ontologies in Software Engineering</i> M. Katsumi & M. Fox – <i>An Ontology-Based Standard for Transportation Planning</i> R. Arista & F. Mas – <i>Applied Ontologies for Assembly System Design and within the Aerospace Industry</i> D. Sormaz & A. Sarkar – <i>Hierarchical Representation of Manufacturing Process Plans using PSL</i>	<b>IAOA Education Committee Meeting</b>  The Education Committee aims to bring together IAOA members who are passionate about Education, and facilitate the development and co-ordination of educational resources relating to ontology.	<b>SoLEE</b> – Chair: N. Guarino J. Vajda et al. – <i>Toward an Ontology of Commercial Exchange</i> F. Toyoshima – <i>A Foundational View on Roles in Conceptual Modeling</i>	<b>SNOMED CT Tutorial</b> (continued)  In the last hour there will be two breakout sessions: 1. Ontological aspects of SNOMED CT 2. SNOMED CT in Austria (can be hold in German)
15:00-16:00		<b>FOUST III Workshop on Foundational Ontology</b> – Chair: A. Galton D. Schmidt et al. – <i>Aligning Conference ontologies with SUMO: a report on manual alignment via WordNet</i> C. Masolo & A. Barton – <i>The Identity of Property Particulars</i>	<b>FOUST III Workshop on Foundational Ontology</b> – Chair: A. Galton D. Schmidt et al. – <i>Aligning Conference ontologies with SUMO: a report on manual alignment via WordNet</i> C. Masolo & A. Barton – <i>The Identity of Property Particulars</i>	<b>SoLEE</b> – Chair: N. Guarino L. Jansen – <i>Toward an Upper-Level Ontology for the Social Domain</i> General discussion – planning of future activities	<b>ODLS 2019 – Ontologies and Data in Life Sciences</b> – Chair: M. Boeker S. Zabka et al. – <i>Towards a Medication Core Data Set for the Medical Informatics Initiative</i> S. Schulz et al. – <i>Aligning an administrative procedure coding system with SNOMED CT</i>
	Coffee Break				
16:30-18:00	<b>MLWo Tutorial</b> (continued) We will review methods for data analysis through ontologies based on semantic similarity. Recent methods for machine learning with ontologies are introduced, as well as knowledge graph embeddings that project ontologies (as components of knowledge graphs) into vector spaces. ML approaches based on random walks, and model-theoretic approaches for learning with ontologies. Hands-on components using Jupyter notebooks are used, please bring your own laptop.	<b>FOMI</b> – Chair: W. Terkaj E. Sanfilippo et al. – Resources in Manufacturing  Panel: Foundational Ontologies for the Industrial Ontologies Foundry with B. Smith – <i>A First-Order Logic Formalization of the Industrial Ontology Foundry Signature Using Basic Formal Ontology</i> N. Guarino – <i>Characterizing IOF Terms with the DOLCE and UFO Ontologies</i> M. Gruninger – <i>PPSL as a Foundational Ontology for the Industrial Ontologies Foundry</i>	<b>FOUST III</b> – Chair: O. Kutz A. B. Benevides et al. – <i>Towards a Unified Theory of Endurants and Perdurants: UFO-AB</i> F. Toyoshima – <i>How Do Processes Work?</i> R. Baratella – <i>No Chance for the Knowledge Argument – A Reply to Stout's "The Category of Occurrent Continuants"</i>	<b>ODLS 2019</b> – Chair: F. Loebe C. Xu et al. – <i>Automatic Translation of Clinical Trial Eligibility Criteria into Formal Queries</i> P. Burek et al. – <i>Cellular Genealogies: Foundations of the Cell Tracking Ontology</i> A. Niederkofler et al. – <i>Knowledge Models for Diagnosing Postharvest Diseases of Apples</i>	
18:00-19:00	<b>IAOA (International Association for Ontology and its Applications) – General Meeting (AULA)</b>				
20:00-21:30	<b>Conference Dinner – Welscher Stub'n – Schmiedgasse 5-7, 8010 Graz – Tram #7 (→ Wetzelsdorf) until Hauptplatz 7 min</b>				

# Wednesday 25

Seminarraum 04 (1 <sup>st</sup> floor)	Hörsaal 3	Hörsaal 4	Hörsaal 5	AULA
8:30-9:00 Registration				
9:00-10:00 <b>Keynote: Valentina Presutti – ArCo: the Knowledge Graph of Italian Cultural Heritage (AULA)</b>				
<b>10:00-11:00 DOnEReCA – Tutorial on Data-driven ontology engineering with Relational Concept Analysis</b> P. Valtchev & M. Wajnborg Data can successfully support ontology engineering tasks such as design or maintenance, assuming it has been properly analyzed to discover possible trends and/or groups.		<b>FOUST III –</b> Chair: F. Loebe M. Gruninger & M. Katsumi – <i>Foundationless Ontologies</i> T. Musgrove – <i>Dialectical ontology as a more practical and more natural ontology paradigm</i>	<b>CREOL – Contextual Representation of Events and Objects in Language –</b> Chair: A. A. Ravelli Introduction to CREOL Keynote: Nicola Guarino – <i>Events and their Context</i>	<b>ODLS – Chair: S. Schulz</b> A. Barton et al. – <i>LABO: An Ontology for Laboratory Test Prescription and Reporting</i> M. Arguello-Casteleiro et al. – <i>From SNOMED CT expressions to an FHIR RDF representation: exploring the benefits of an ontology-based approach</i>
Coffee Break				
<b>11:30-12:30 DOnEReCA</b> Tutorial (continued) For instance, when an ontology is designed from a relational database, a first (rough) ontology can be enhanced by the result of a conceptual clustering to reveal missing classes, and even properties, in that ontology. Similarly, when populating an existing ontology with an independently created data, ...	<b>SHAPES 5.0 – The Shape of Things – Chair: O. Kutz</b> Raimundo Henriques – <i>Architectural Functionalism Reconsidered</i> D. Dooley & W. Hsiao – <i>3D Visualization of Application Ontology Class Hierarchies</i>	<b>FOUST III –</b> Chair: A. Galton B. Brodaric – <i>Kinds of Physical Features</i> R. Baumann et al. – <i>Properties Defined on the Basis of Coincidence in GFO-Space</i> E. Jezek – <i>Sweetening Ontologies</i> Cont'd: <i>Aligning Bottom-up and Top-Down Ontologies</i>	<b>CREOL – Chair: V. Basile</b> A. Chow & M. Gruninger – <i>Multimodal Event Recognition with an Ontology for Cooking Recipes</i> M. Ghosh & H. Abdulrab – <i>Towards a Pattern-Based Core Model of Events in the Legal Domain</i>	<b>ODLS – Chair: A. Barton</b> J. A. Vera-Ramos et al. – <i>An example of multimodal biological knowledge representation</i> F. Toyoshima – <i>Formalizing a General Disease Module</i>
Lunch Break				
<b>14:00-15:00 DOnEReCA</b> Tutorial (continued) ... one might want to determine how well the data fit the ontology w.r.t. the mapping of resources to ontology classes. This warrants analysis of data descriptions to detect characteristic associations among ontology types, on one hand, and own descriptions in term of properties, on the other hand, which might reveal anomalous configurations.	<b>SHAPES 5.0 –</b> Chair: G. Righetti M.R. Stufano Melone et al. – <i>Towards an ontology-based framework to store and retrieve memories for creative architectural projects</i> Y. Ru & M. Gruninger – <i>More than just One Box</i> M. M. Hedblom & O. Kutz – <i>Hidden Meaning: Using image schema violations to expose hidden semantical structures in metaphors</i>	<b>FOUST III –</b> Chair: F. Neuhaus A. Barton et al. – <i>Directing actions</i> D. Porello et al. – <i>On weak truthmaking projects</i>		<b>ODLS – Chair: L. Jansen</b> A. Uciteli et al. – <i>Ontological Modelling and Reasoning of Phenotypes</i> J. Herrmann et al. – <i>Ontology Patterns for Tubular or Spherical Layered Structures. A Case Study from Oncology</i> F. Toyoshima – <i>Linking Temporal Parts in Processual Biological Ontology</i>
15:00-15:30				O. Sanchez-Graillet et al. – <i>C-Tro: an ontology for summarization and aggregation of the level of evidence in clinical trials</i>
15:30-16:00				C. Martínez Costa et al. – <i>Addressing the negation gap in SNOMED CT by reified negated concepts</i>
Coffee Break				
16:30-17:00				<b>ODLS – Business meeting</b>
17:30-19:00 Ontology Pub Quiz – Brot & Spiele – Mariahiferstraße 17 – Room: CUBA – tram #7 (→ Wetzelsdorf) until Südtiroler Platz, 5min				

# JOWO 2019

## Episode V: The Styrian Autumn of Ontology September 23 | 24 | 25

The **Medical University of Graz** and the Austrian state of Styria welcome you to the 2019 edition of the **Joint Ontology Workshops (JOWO)** on September 23-25, 2019. This fifth edition includes twelve workshops and five tutorials.

In addition to workshops, JOWO is hosting keynotes and meetings of IAOA Special Interest Groups and Technical Committees.

JOWO is taking place at the new campus of the Medical University of Graz. It can easily be reached using tram line number 7 or bus line 58.



<http://bit.ly/JOWO2019>

All rooms but one (Hörsaal 3, 4 and 5) are located on the ground floor, left of the central lecture hall ("Aula"), one seminar room is in the 1<sup>st</sup> floor. The registration desk is left of the main entrance. For Wi-Fi access, use *eduroam* or get the access code at the registration desk. Coffee and lunch are served at the conference venue. Don't miss the Monday reception (free) at a historic place in downtown Graz.

Each day there is one keynote from 9 am to 10 am:

- Monday 23 **Antony Galton** – Theories of Time and Temporality: A Guided Tour for Ontologists
- Tuesday 24 **Yongsheng Gao** – Insights into Large-Scale Ontology Production
- Wednesday 25 **Valentina Presutti** – ArCo: the Knowledge Graph of Italian Cultural Heritage

### We thank our sponsors:

- SNOMED International** – Leading healthcare terminology, worldwide
- The International Association for Ontology and its Applications (IAOA)**
- Land Steiermark (The Austrian Federal State of Styria)**

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### Enjoy JOWO – enjoy Graz!

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##### Selja Seppälä

University College Cork, Ireland

#### JOWO 2019

##### Proceedings Chair

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Laboratory of Applied Ontology, Trento, Italy

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