**9th annual International Conference on Biological Ontologies (ICBO2018)
Ontologies for Health, Food, Nutrition and Environment: A partnership with BIG-Data and Analytics**

Conference website: <http://icbo2018.cgrb.oregonstate.edu>

Oregon State University hosted the 9th annual International Conference on Biological Ontologies (<http://icbo2018.cgrb.oregonstate.edu>). The theme of the ICBO2018 was Ontologies for Health, Food, Nutrition and Environment A partnership with BIG-Data and Analytics. ICBO2018 was a marquee event celebrating the 150th anniversary of the founding of Oregon State University ([OSU150](http://oregonstate.edu/150)).

ICBO2018 attended by over 130 participants from 10 countries, provided a venue for presenting and discussing research, development and usefulness of biomedical ontologies (including human health and diseases, vectors, drugs, bio-chemicals, biodiversity, plants, agriculture, food and environment) on building data standards, annotation workflows and data analytics. Attendees represented significant areas of biology, medicine, ecology, computer science, mathematics, text-mining, data analytics, and software and tool development. Dr. Pankaj Jaiswal from Oregon State University was the Conference Chair. The Conference Program co-Chairs Dr.Chris Mungall from the Lawrence Berkeley National Laboratory (LBNL) and Dr. Melissa Haendel from the Oregon State University organized the [conference program](http://icbo2018.cgrb.oregonstate.edu/program).with help from the Program Committee members The scientific presentations were in the form of 30 plenary talks and [32 posters and software](http://icbo2018.cgrb.oregonstate.edu/node/41) demonstrations.

The three thought-provoking ICBO2018 Keynote talks were given by [Dr. Kwan Liu-Ma](http://web.cs.ucdavis.edu/~ma/research.html) from the University of California Davis on “[*Visualization: A Powerful Tool for Data Exploration and Storytelling*](http://icbo2018.cgrb.oregonstate.edu/node/154)”, Josh Clark from [Big Medium Inc](https://bigmedium.com). on “The Care and Feeding of Algorithms” for design, analytics and user engagement and Dr. Parag Chitnis from National Inst. of Food and National Institute of Food and Agriculture ([NIFA](https://nifa.usda.gov/staff-contact/parag-r-chitnis)) on “Changing Face of Agriculture: Data-driven opportunities for nutrition and health”.

The four invited talks were by [Niklaus Grunwald](http://icbo2018.cgrb.oregonstate.edu/speakers#nik) from USDA ARS on “[*Taxa, metacoder, poppr and vcfR: Four packages for parsing, visualization, and manipulation of genetic, genomic and metagenomic data in R*”](http://icbo2018.cgrb.oregonstate.edu/node/172), [David LeBauer](http://icbo2018.cgrb.oregonstate.edu/speakers#lebauer) from TerraRef project on “[*Vocabularies, Ontologies, APIs, and Formats for Heterogeneous High Throughput Crop Phenotyping Data*](http://icbo2018.cgrb.oregonstate.edu/node/166)”, [Carolyn Lawrence](http://icbo2018.cgrb.oregonstate.edu/speakers#dill) from Iowa State University on “[*GO-MAP Implements CAFA Tools: Improved Automated Gene Function Annotation for Plants*](http://icbo2018.cgrb.oregonstate.edu/node/162)” and Matthew Lange from UC Davis on “*Designing and Building the* [*IC-FOODS Foundry*](https://www.ic-foods.org/)*: Community, Technology, and Standards for a Semantic Web of Food*”.

Thirteen pre and post-conference [workshop](http://icbo2018.cgrb.oregonstate.edu/workshops) held at ICBO2018 included the Phenotype Ontologies Traversing All The Organisms (POTATO) [Aligning phenotype ontologies using design patterns](http://icbo2018.cgrb.oregonstate.edu/node/29), [ONCONTO 2018: 2nd International Workshop on Oncology and Ontology](http://icbo2018.cgrb.oregonstate.edu/node/20), [Ontology-driven text-mining analysis and normalization of free-text specimen descriptions](http://icbo2018.cgrb.oregonstate.edu/node/23), [Data Standards and Knowledge Sharing in Biodiversity -Tools and Applications](http://icbo2018.cgrb.oregonstate.edu/node/26), [Deep Learning in the Life Sciences](http://icbo2018.cgrb.oregonstate.edu/node/30) and [Biological pathway curation jamboree](http://icbo2018.cgrb.oregonstate.edu/pathway-workshop). Each of the workshop session included talks, demo, hands-on exercises and discussion forums relevant to their theme.

The [Biological pathway curation jamboree](http://icbo2018.cgrb.oregonstate.edu/pathway-workshop) was organized by Sushma Naithani of the NSF-funded [Gramene database](http://www.gramene.org). In the jamboree participants learned about the biocuration process, literature and data mining, pathway analysis, and biocuration tools with particular emphasis on using the Reactome Curator Tool and plant pathways. The curation of plant pathways is an ongoing work of the [Plant Reactome database](http://plantreactome.gramene.org). The workshop report is available from [Gramene News](http://gramene.org/node/482).

The day-long pre-conference workshop on Phenotype Ontologies Traversing All The Organisms (POTATO) was a venue to discuss data standards on phenotype annotation tools for pattern-based development ([Dead Simple Ontology Design Patterns (DOSDP)](https://jbiomedsem.biomedcentral.com/articles/10.1186/s13326-017-0126-0) and the [Ontology Development Kit (ODK)](https://github.com/INCATools/ontology-development-kit). The workshop report is available at [Medium](https://medium.com/%40MonarchInit/potato-workshop-aims-to-root-out-inconsistencies-between-phenotype-ontologies-1baf37e2df30)

The two-day post-conference workshop “[Deep Learning in the Life Sciences](http://icbo2018.cgrb.oregonstate.edu/node/30)” was an introductory hands-on workshop on Machine Learning to train students and researchers working on various biological datasets. The workshop was co-organized with the Center for Genome Research and Biocomputing ([CGRB](https://cgrb.oregonstate.edu/)). The instruction was provided by experts from [IBM](http://www.ibm.com).

The plenary talks and posters were selected after peer-review of over 60 scientific articless. The ICBO2018 conference abstracts are available [online](http://icbo2018.cgrb.oregonstate.edu/abstracts). The articles will be published later in an online open access conference proceedings.

We thanks our [Sponsors](http://icbo2018.cgrb.oregonstate.edu/sponsors), the [International Society for Biocuration](http://biocuration.org/), the College of Agricultural Sciences, Department of Botany and Plant Pathology, Department of Environment and Molecular Toxicology, College of Engineering (EECS) and the Sponsored Research Office at Oregon State University and industry partners, [Illumina Inc.](http://www.illumina.com), [Sanmita Inc](http://www.sanmita.com), and [Sensiplicity LLC](http://www.sensiplicity.com). The conference was partially supported by the grants to Pankaj Jaiswal for the [Gramene database](http://www.gramene.org) (**IPGA: Gramene - Exploring Function through Comparative Genomics and Network Analysis;** NSF-PGRP **Award 1127112)**  and the [Planteome project](http://www.planteome.org) (**cROP: Common Reference Ontologies and Applications for Plant Biology;** NSF-PGRP **Award 1340112)** and the NIH conference grant to Melissa Haendel and Peter Robinson (Forums for Integrative phenomics; NIH award 1U13CA221044).

ICBO2018 concluded with a vote of thanks and the announcement for 10th ICBO (ICBO2019) to be held at the University at Buffalo, New York, USA.