ICBO

**International Conference
on Biomedical Ontology**

July 28-30, 2011
Buffalo, New York, USA

8:00am   **Registration & Continental Breakfast** [Ballrooms 1-4]

8:45am   **Opening Remarks**

- **Harvey G. Stenger** (Provost, University at Buffalo)

- **Mark Musen** (National Center for Biomedical Ontology, Stanford University)

9:00am   **From Proteins to Diseases**
Invited Panel sponsored by the Protein Ontology (PRO) · http://pir.georgetown.edu/pro/

- **The Integration of Biomedical Knowledge**
  Cathy Wu (Moderator)

- **Pathways and Complexes: How to Represent What We Know and What We Don't Know**
  Judith Blake

- **From Protein Complex to Supra-Complex**
  Bill Crosby

- **Pathways and Diseases: Towards an Integrated Representation**
  Peter d'Eustachio

10:15am   **Refreshment Break**

10:45am   **Gene and Cell Ontologies**
Chairs: Judith Blake (The Jackson Laboratory) and Stefan Schulz (Medical University of Graz)

- **Where GO is Going and What it Means for Ontology Extension**
  Catia Pesquita, Francisco M. Couto

- **Revising the Cell Ontology**
  Terrence F. Meehan, Christopher J. Mungall, Alexander D. Diehl

- **Rapid Development of an Ontology of Coriell Cell Lines**
  Chao Pang, Tomasz Adamusiak, Helen Parkinson, James Malone

- **Cell Line Ontology: Redesigning the Cell Line Knowledgebase to Aid Integrative Translational Informatics**
  Sirarat Sarntivijai, Zuoshuang Xiang, Terrence F. Meehan, Alexander D. Diehl, Uma Vempati,
  Stephan Schürer, Chao Pang, James Malone, Helen Parkinson, Brian D. Athey, Yongqun He

- **Towards a Semantic Web Application: Ontology-Driven Ortholog Clustering Analysis**
  Yu Lin, Zuoshuang Xiang, Yongqun He

12:30pm   **Buffet Lunch** [Ballroom 5]

1:45pm   **Ontology of Biological Mechanisms**
Chairs: Lindsay Cowell (University of Texas Southwestern Medical Center) and Jobst Landgrebe (Cognotekt)

- **HeartCyc: A Cardiac Cycle Process Ontology Based in the Ontology of Physics for Biology**
  Daniel L. Cook, Michal Galdzicki, Maxwell L. Neal, Jose L.V. Mejino, John H. Gennari

- **Composite Annotation for Heart Development**
  Tariq Abdulla, Ryan Imms, Jean-Marc Schleich, Ron Summers

- **Ontology-Based Analysis of Event-Related Potentials**
  Gwen Frishkoff, Robert Frank, Paea LePendu

- **Dispositions and Processes in the Emotion Ontology**
  Janna Hastings, Werner Ceusters, Barry Smith, Kevin Mulligan

3:00pm   **Refreshment Break**

3:30pm   **The OBO Foundry**
Featuring discussions of the Plant Ontology (Laurel Cooper), the Ontology for Biomedical Investigations (Bjoern Peters),
the Ontology for General Medical Science (Albert Goldfain) and the Infectious Disease Ontology (Lindsay Cowell)

5:30pm   **Posters, Software Demonstrations, and Cash-Bar Reception**

Reception provided by the generous support of CTG (Computer Task Group)
http://www.ctg.com/lifesciences/

Poster Session 1 (5:30pm-7:00pm):

- *owl_cpp*, a C++ Library for Working with OWL Ontologies
  Mikhail K. Levin, Alan Ruttenberg, Anna Maria Masci, Lindsay G. Cowell

- Towards Ontologies for 'Textbook' of the Future in Obstetrics and Gynecology (OB/Gyn)
  Yu Lin, Chris Chapman, Erin D. Doelling, Maya Hammoud

- Gene Ontology Signatures for Immune Cell-Types Inferred by Gene Expression Analysis
  Terrence F. Meehan, Christopher J. Mungall, Judith A. Blake, Alexander D. Diehl

- Aligning Research Resource and Researcher Representation: The eagle-i and VIVO Use Case
  Stella Mitchell, Carlo Torniai, Brian Lowe, Jon Corson-Rikert, Melanie Wilson, Mansoor Ahmed,
  Shanshan Chen, Ying Ding, Nicholas Rejack, Melissa Haendel, the eagle-i Consortium, the VIVO Collaboration

- An Ontology-Based Approach to Linking Model Organisms and Resources to Human Diseases
  Chris J. Mungall, David Anderson, Anita Bandrowski, Brian Canada, Andrew Chatr-Aryamontri, Keith Cheng,
  P. Michael Conn, Kara Dolinski, Mark Ellisman, Janan Eppig, Jeffrey S. Grethe, Joseph Kemnitz, Shawn Iadonato,
  Stephen D. Larson, Charles Magness, Maryann E. Martone, Mike Tyers, Carlo Torniai, Olga Troyanskaya,
  Judith Turner, Monte Westerfield, Melissa A. Haendel

- Using RxNorm to Extract Medication Data from Electronic Health Records
  in the Rochester Epidemiology Project
  Jyotishman Pathak, Shawn P. Murphy, Brian N. Willaert, Hilal M. Kremers,
  Christopher G. Chute, Barbara P. Yawn, Walter A. Rocca

- Automatic Discourse Connective Detection in Biomedical Text
  Balaji Polepalli Ramesh, Rashmi Prasad, Tim Miller, Hong Yu

- Towards Desiderata for Provenance Ontologies in Biomedicine
  Satya S. Sahoo

- Modeling Issues and Solutions: Building a Taxonomy from a Biology Textbook
  A. Patrice Seyed, John Pacheco, Andrew Goldenkranz, Vinay Chaudhri

- Biomedical Analyses: OWL Model Based Edition
  Pierre-Yves Vandenbussche, Ferdinand Dhombres, Sylvie Cormont, Jean Charlet, Eric Lepage

- Ontobee: A Linked Data Server and Browser for Ontology Terms
  Zuoshuang Xiang, Chris Mungall, Alan Ruttenberg, Yongqun He

Software Demonstrations 1 (6:00pm-6:50pm) [Ballroom 1]:
Chair: Patricia L. Whetzel (Stanford University)

- Protein-Centric Connection of Biomedical Knowledge: Protein Ontology (PRO) Research and Annotation Tools
  Cecilia N. Arighi, Darren A. Natale, Judith A. Blake, Carol J. Bult, Michael Caudy, Alexander D. Diehl,
  Harold J. Drabkin, Peter D'Eustachio, Alexei Evsikov, Hongzhan Huang,
  Natalia V. Roberts, Alan Ruttenberg, Barry Smith, Jian Zhang, Cathy H. Wu

- SHIRAZ and CABERNET: Leveraging Automation, Crowdsourcing, and Ontologies to Improve
  the Accuracy and Throughput of Zebrafish Histological Phenotype Annotations
  Brian Canada, Georgia Thomas, John Schleicher, James Z. Wang, Keith C. Cheng

- Biomedical Ontology Matching Using the AgreementMaker System
  Isabel F. Cruz, Cosmin Stroe, Catia Pesquita, Francisco M. Couto, Valerie Cross

- Bioportal: Ontologies and Integrated Data Resources at the Click of a Mouse
  Patricia L. Whetzel, Natasha Noy, Nigam Shah, Paul Alexander, Michael Dorf, Ray Fergerson,
  Margaret-Anne Storey, Barry Smith, Chris Chute, Mark Musen

- Populous: A Tool for Populating an Ontology
  Simon Jupp, Matthew Horridge, Luigi Iannone, Julie Klein, Stuart Owen,
  Joost Schanstra, Katy Wolstencroft, Robert Stevens

7:00pm **Dinner & Keynote Lecture** [Ballroom 5]
Chair: Christian J. Stoeckert Jr. (University of Pennsylvania)

Bernard de Bono

Virtual Physiological Human Project

Bernard de Bono (MD, PhD) leads the RICORDO effort at the European Bioinformatics Institute, providing semantic interoperability for mathematical models of physiology and associated clinical data. Dr. de Bono's work on interoperability standards and knowledge representation contribute to biomedical modeling carried out by the Virtual Physiological Human and Innovative Medicines Initiative communities. Until 2009, de Bono lectured on basic and applied physiology at the Malta Medical School.

ICBO Day 2 · Friday, July 29, 2011

8:00am **Continental Breakfast** [Ballrooms 1-4]

8:30am **Ontologies for Biomedical Investigations**
Chairs: Mélanie Courtot (British Columbia Cancer Research Center)
and Bjoern Peters (La Jolla Institute for Allergy and Immunology)

- **An Advanced Strategy for Integration of Biological Measurement Data**
Hiroshi Masuya, Georgios V. Gkoutos, Nobuhiko Tanaka, Kazunori Waki, Yoshihiro Okuda, Tatsuya Kushida, Norio Kobayashi, Koji Doi, Kouji Kozaki, Robert Hoehndorf, Shigeharu Wakana, Tetsuro Toyoda, Riichiro Mizoguchi

- **Annotating Experimental Records Using Ontologies**
Alexander García, Olga Giraldo, Jael García

- **Ontology Driven Data Collection for EuPathDB**
Jie Zheng, Omar S. Harb, Christian J. Stoeckert Jr.

- **Developing an Application Ontology for Biomedical Resource Annotation and Retrieval: Challenges and Lessons Learned**
Carlo Torniai, Matt Brush, Nicole Vasilevsky, Erik Segerdell, Melanie Wilson, Tenille Johnson, Karen Corday, Chris Shaffer, Melissa Haendel,

9:50am **Refreshment Break**

10:20am **Ontology Mapping and Integration**
Chairs: Christopher Mungall (Lawrence Berkeley National Labs) and Robert Stevens (University of Manchester)

- **Mapping Composition for Matching Large Life Science Ontologies**
Anika Groβ, Michael Hartung, Toralf Kirsten, Erhard Rahm

- **Generic Semantic Relatedness Measure for Biomedical Ontologies**
João D. Ferreira, Francisco M. Couto

- **Aligning the Parasite Experiment Ontology and the Ontology for Biomedical Investigations Using AgreementMaker**
Valerie Cross, Cosmin Stroe, Xueheng Hu, Pramit Silwal, Maryam Panahiazar, Isabel F. Cruz, Priti Parikh, Amit Sheth

- **A Case Study of ICD-11 Anatomy Value Set Extraction from SNOMED CT**
Guoqian Jiang, Harold R. Solbrig, Robert J.G. Chalmers, Kent Spackman, Alan L. Rector, Christopher G. Chute

- **The HL7 Approach to Semantic Interoperability**
Jobst Landgrebe, Barry Smith

12:00pm **Buffet Lunch** [Ballroom 5]

1:30pm **NCBO Technology in Support of Clinical and Translational Science**
Speakers will include John Gennari, Parsa Mirhaji, Mark Musen (Moderator), Nigam Shah and Rob Wynden
Invited Panel sponsored by the National Center for Biomedical
Ontology (NCBO) · http://www.bioontology.org/

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BIOMEDICAL ONTOLOGY

3:00pm   **Refreshment Break**

3:30pm   **Free Time / Parallel Sessions on Special Topics**
- Topics to be announced

5:30pm   **Posters, Software Demonstrations, and Cash-Bar Reception**

C O G N I G E N   Reception provided in part by the generous support of Cognigen Corporation
http://www. cognigencorp.com/

Poster Session 2 (5:30pm-7:00pm):

- **The Blood Ontology: An Ontology in the Domain of Hematology**
  Mauricio Barcellos Almeida, Anna Barbara de Freitas Carneiro Proietti, Jiye Ai, Barry Smith

- **Employing Reasoning within the Phenoscape Knowledgebase**
  James P. Balhoff, Wasila M. Dahdul, Hilmar Lapp, Peter E. Midford,
  Todd J. Vision, Monte Westerfield, Paula M. Mabee

- **Waiting for a Robust Disease Ontology: A Merger of OMIM and MeSH as a Practical Interim Solution**
  Susan M. Bello, Allan Peter Davis, Thomas C. Wiegers, Mary E. Dolan, Cynthia Smith,
  Joel Richardson, Judith Blake, Carolyn Mattingly, Janan T. Eppig

- **Developing a Reagent Application Ontology within the OBO Foundry Framework**
  Matthew H. Brush, Nicole Vasilevsky, Carlo Torniai, Tenille Johnson, Chris Shaffer, Melissa A. Haendel

- **The Ontology of Microbial Phenotypes (OMP): A Precomposed Ontology Based on Cross Products
  from Multiple External Ontologies that is Used for Guiding Microbial Phenotype Annotation**
  Marcus Chibucos, Adrienne Zweifel, Deborah Siegele, Peter Uetz, Michelle Giglio, James Hu

- **Towards an Adverse Event Reporting Ontology**
  Mélanie Courtot, Ryan R. Brinkman

- **OntoOrpha : An Ontology to Support Edition and Audit of Knowledge of Rare Diseases in ORPHANET**
  Ferdinand Dhombres, Pierre-Yves Vandenbussche, Ana Rath,
  Marc Hanauer, Annie Olry, Bruno Urbero, Rémy Choquet, Jean Charlet

- **An Ontology for Gastrointestinal Endoscopy**
  Shahim Essaid

- **Enriching the Ontology for Biomedical Investigations (OBI)
  to Improve its Suitability for Web Service Annotations**
  Chaitanya Guttula, Alok Dhamanaskar, Rui Wang, John A. Miller,
  Jessica C. Kissinger, Jie Zheng, Christian J. Stoeckert, Jr.

- **Recent Developments in the ChEBI Ontology**
  Janna Hastings, Paula de Matos, Adriano Dekker, Marcus Ennis, Kenneth Haug,
  Zara Josephs, Gareth Owen, Steve Turner, Christoph Steinbeck

- **Representing Local Identifiers in a Referent-Tracking System**
  William R. Hogan, Swetha Garimalla, Shariq A. Tariq, Werner Ceusters

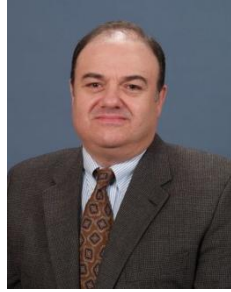## Software Demonstrations 2 (6:00pm-6:50pm) [Ballroom 1]:
Chair: Patricia L. Whetzel (Stanford University)

- **The Vitro Integrated Ontology Editor and Semantic Web Application**
  Brian Lowe, Brian Caruso, Nick Cappadona, Miles Worthington,
  Stella Mitchell, Jon Corson-Rikert, and VIVO Collaboration

- **The BioPortal Import Plugin for Protégé**
  Jithun Nair, Tania Tudorache, Trish Whetzel, Natalya Noy, Mark Musen

- **The Biomedical Ontology Applications (BOA) Framework**
  Bruno Tavares, Hugo P. Bastos, Daniel Faria, João D. Ferreira, Tiago Grego, Catia Pesquita, Francisco M. Couto

- **The NCBO Annotator: Ontology-Based Annotation as a Web Service**
  Patricia L. Whetzel, Clement Jonquet, Cherie Youn, Michael Dorf, Ray Fergerson, Mark Musen, Nigam Shah

- **OntoFox and its Application in Development of Brucellosis Ontology**
  Zuoshuang Xiang, Yu Lin, Yongqun He

7:00pm **Dinner & Keynote Lecture** [Ballroom 5]
Chair: Olivier Bodenreider (NIH National Library of Medicine)

Roberto Rocha

Practical Applications of Ontologies in Clinical Systems

Dr. Roberto Rocha is the Senior Corporate Manager for Knowledge Management and Clinical Decision Support in the Clinical Informatics Research & Development (CIRD) group at Partners HealthCare, and a Lecturer in Medicine at the Brigham and Women's Hospital, Harvard Medical School. At Partners, Dr. Rocha leads a team of over 20 clinical knowledge engineers responsible for the implementation and maintenance of knowledge bases integrated with clinical systems and accessible to clinical providers. Dr. Rocha's current academic activities include informatics teaching and research, particularly in the areas of knowledge modeling and representation, processes and software tools for knowledge engineering, and healthcare interoperability standards.

ICBO Day 3 · Saturday, July 30, 2011

8:00am **Continental Breakfast** [Ballrooms 1-4]

8:30am **Ontology and the Electronic Health Record**
Chairs: Christopher Chute (Mayo Clinic) and
Kent Spackman (International Health Terminology Standards Development Organization)

- **Representing the Reality Underlying Demographic Data**
  William R. Hogan, Swetha Garimalla, Shariq A. Tariq

- **Information Models and Ontologies for Representing the Electronic Health Record**
  Daniel Karlsson, Martin Berzell, Stefan Schulz

- **The CHRONIOUS Ontology Suite: Methodology and Design Principles**
  Luc Schneider, Mathias Brochhausen

- **River Flow Model of Diseases**
  Riichiro Mizoguchi, Kouji Kozaki, Hiroko Kou, Yuki Yamagata, Takeshi Imai, Kayo Waki, Kazuhiko Ohe

9:50am **Refreshment Break**

10:30am **Panel: Problems with Existing EHR Paradigms and How Ontology Can Solve Them**
Speakers will include William Hogan (Moderator), Christopher Chute, Roberto Rocha and Kent Spackman

11:45am **Buffet Lunch** [Ballroom 5]

1:00pm **Principles of Ontology Development**
Chairs: Alexander Diehl (University at Buffalo) and Melissa Haendel (Oregon Health & Science University)

- **Applying Rigidity to Standardizing OBO Foundry Candidate Ontologies**
  A. Patrice Seyed, Stuart C. Shapiro

- **Higgs Bosons, Mars Missions, and Unicorn Delusions:**
  How to Deal with Terms of Dubious Reference in Scientific Ontologies
  Stefan Schulz, Mathias Brochhausen, Robert Hoehndorf

- **Towards an Ontology for Conceptual Modeling**
  James P. McCusker, Joanne Luciano, Deborah L. McGuinness

- **What's in an 'is about' Link? Chemical Diagrams and the Information Artifact Ontology**
  Janna Hastings, Colin Batchelor, Fabian Neuhaus, Christoph Steinbeck

2:20pm **Refreshment Break**

2:45pm **Panel: Collaborative Ontology Development: Why? and How?**
Speakers will include Chimezie Ogbuji, Stephan Schürer, Bjoern Peters and Barry Smith
(Moderated by Alan Ruttenberg)

4:00pm **Closing Remarks** · Barry Smith (University at Buffalo)

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Suzanna E. Lewis, Lawrence Berkeley National Laboratory

Mark Musen, Stanford University

Alan Ruttenberg, University at Buffalo

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- J. L. E. Mejino, Jr., University of Washington
- Alexa McCray, Harvard Medical School
- Christopher Mungall, Lawrence Berkeley National Laboratory
- Mark Musen, Stanford University
- Darren Natale, Georgetown University
- Chimezie Ogbuji, Cleveland Clinic
- Helen Parkinson, European Bioinformatics Institute
- Bjoern Peters, La Jolla Institute for Allergy and Immunology
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- Ida Sim, University of California at San Francisco
- Harold Solbrig, Mayo Clinic
- Kent Spackman, International Health Terminology Standards Development Organization
- Christian J. Stoeckert Jr., University of Pennsylvania
- Cathy Wu, Georgetown University and University of Delaware

Sponsored by:

University at Buffalo College of Arts and Sciences, National Center for Ontological Research, National Center for Biomedical Ontology, Computer Task Group, Cognigen Corporation, IMIA WG6 and the Protein Ontology

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NOTES