

## Research Opportunities in Semantic Computing, Semantic Search, Semantic Web & Semantic-Oriented Programming

**Semantic Computing:** Semantic Computing addresses technologies that allow users to create, manipulate or retrieve computational content based on semantics (“meaning”, “intention”), where “content” may be anything such as video, audio, text, software, hardware, network, environment, process, etc.

Sheu, P., Yu, H., Ramamoorthy, C., Joshi, A., Zadeh, L. (Editors) (2010) *Semantic Computing*, Wiley-IEEE Press

7th IEEE International Conference on Semantic Computing, September 16-18, 2013, Irvine, California, USA, (<http://iee-icsc.org/>).

**Semantic Search:** Semantic search is a data searching technique in which the search results are based on the meaning of the query or words used for search.

Kotzakolios, M. (2013) *WEB 3.0: Semantic Search*, Kindle

De Virgilio, R., Guerra, F. & Velegrakis, Y. (2012) *Semantic Search over the Web (Data-Centric Systems and Applications)*, Springer

What is Semantic Search and how it works with Google search -

<http://www.techulator.com/resources/5933-What-Semantic-Search.aspx>

**Semantic Web:** "The Semantic Web is an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation." Berners-Lee et al

Allemang, D. & Hendler, J. (2011) *Semantic Web for the Working Ontologist, Second Edition: Effective Modeling in RDFS and OWL*, 2nd Ed., Morgan Kaufmann

Berners-Lee, T., Hendler, J. & Lassila, O. (2001) The Semantic Web, *Scientific American*, May 2001.

Antoniou, G., Groth, P., Harmelen, F. & Hoekstra, R (2012) *A Semantic Web Primer (Cooperative Information Systems series)*, MIT Press.

Hebeler, J. Fisher, M., Blace, B. & Perez-Lopez, A. (2009) *Semantic Web Programming*, Wiley

Leos, J. (2006). A Semantic Web Programming Language. Retrieved on August 6, 2010 from [esw.w3.org/SemWebProgrammingLanguage](http://esw.w3.org/SemWebProgrammingLanguage).

W3C Recommendation (2004) RDF Primer, <http://www.w3.org/TR/rdf-primer/>

Journal on Data Semantics, A springer journal.

**Semantic-Oriented Programming : A programming approach that creates meaning as the central principle of organizing programming thought.**

Sebesta, R. (2012) *Concepts of Programming Languages*, (10th Edition), Addison-Wesley

Goal Oriented Programming Semantics - <http://groups.csail.mit.edu/o2s/goals.html>