Ryan Wisnesky

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Education

4th year Ph.D. Candidate, Computer Science, Harvard University
Advisor: Greg Morrisett. Area: Programming/Query Languages, Verification, Type Theory.

M.S. Computer Science, Stanford University, 2006. Area: Systems.
B.S. Mathematics & Computer Science, Stanford University, 2006.

Research Experience

IBM Research, Summer 2007 Almaden, CA

Returned to the Clio group to study schema mappings as typed objects, creating theory and tools underlying syntactically polymorphic and semantically compositional languages for describing systems of mappings. These languages enable many forms of schema mapping reuse.

- Created a domain specific language for Clio nested schema mappings, sufficient to describe mapping re-use through both dependency (mappings depending on other mappings) and polymorphism (mappings used at many types).
- Implementing a Clio extension supporting type-based mapping search and automatic discovery of when mappings may apply in dataflow graph (e.g. web service mashup) contexts.
- A paper describing this work appears in ICDT '10, and a poster in ICFP '08.

IBM Research, Summer 2006 Almaden, CA

Worked with the Clio group to express Extract Transform and Load (ETL) dataflows using the group's pioneering declarative mapping semantics, and vice versa. This equivalence allows mappings generated by mapping tools like Rational Data Architect to be deployed as ETL dataflows, and allows ETL dataflows to be manipulated by high-level mapping tools.

- Designed and led development of a system implementing the equivalence transform. This work is being productized as the FastTrack component of IBM Information Server.
- Defined an abstract ETL graph model capturing both ETL and schema mapping semantics, and investigated re-write algorithms for this model.
- Submitted a patent disclosure describing this work. A paper describing this work appears in ICDE '08.

Development Experience

Peerium, Fall 2007 – present Cambridge, MA

Developer and architect for various aspects of the Peerium platform, including language design, compilation, and networking.

IBM Software Group, Summer 2005 Almaden, CA

Member of an extreme blue team that implemented a set of adapter operators between the IBM Websphere Product Center (WPC) and IBM DB2 ETL technology. The operators allow WPC business objects and metadata to be represented in a purely relational way to interact with ETL dataflows, where the extracted information can be transformed and loaded into and from various relational systems.

- Created a rich EMF-based logical model of WPC business objects that can be remotely populated with WPC metadata.
- Developed a set of ETL operators that serve as a bridge between the ETL framework and the logical WPC model.
- Led development of the code-generation and runtime components of the operators.
- Papers describing this work appear in BIRTE '06 and BIMA '08.

IBM Printing Systems, Summer 2002, 03, 04, Boulder, CO: Developer for several products, including grid services for datastream transformations, autonomic technology for printer diagnostics and network trace analysis. **Bosch Corp**, Spring 2004, Palo Alto, CA: GUI Consultant. **eConvergent, Inc**, 2000-01, Longmont, CO: Developer for in-house debugging tools.

Additional Information

Experience with C, Java, Swing, EMF, Haskell, Coq, SOAP, ETL.

Harvard Graduate Prize Fellow, 2006-2011. IBM/GEM Consortium Fellow, 2006. National Merit Scholar, 2001.

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