

**Kenneth Lorenz Knowles**  
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Hard-working, self-motivated engineer with a strong mathematical background, familiar with a wide variety of programming languages and paradigms, with a special talent for learning new languages and systems quickly.

C, Objective C, C++, Java, C#, PHP, Perl, ASP, Transact-SQL, Matlab/Octave/Scilab, Haskell, Objective CAML, Scheme, Common Lisp, LaTeX, Pascal, Visual Basic, Coq, Isabelle/HOL

## **Work Experience:**

2009 – present     **iPhone Application Engineer**     Sugarcube, Inc.

- Developed iPhone apps for Fortune 500 brands featured in Apple commercials and stores (Objective C)
- Implemented XML-based data models for interacting with client web services
- Developed uncompromisingly polished “Apple quality” user interfaces
- Integrated iPhone frontend with web services including Facebook, Twitter, and Shopstyle
- Wrote supplementary middleware transformations on web service data (Perl, PHP, XSLT)
- Prototyped web-based content management systems for data-driven iPhone applications
- Managed certification, build, and app store submission process
- See also [www.sugarcubesw.com](http://www.sugarcubesw.com)

2004 – 2009     **Teaching and Research Assistant**     University of California, Santa Cruz

- Delivered supplementary lectures; led discussion sections; provided one-on-one tutoring
- Prototyped research in advanced languages (Haskell, Objective CAML, Coq, Isabelle/HOL)
- Performed research independently and collaboratively
- Selected research publications:
  - ▷ Compositional and Decidable Checking for Dependent Contract Types. With Cormac Flanagan. In *Proceedings of Programming Languages meets Program Verification, 2009 (PLPV'09)*.
  - ▷ Proving correctness of a dynamic atomicity analysis in Coq. With Caitlin Sadowski, Jaeheon Yi, and Cormac Flanagan. In *Proceedings of the Workshop on Mechanizing Metatheory, 2008 (WMM'08)*.
  - ▷ First-Order Logic Á la Carte. In *The Monad Reader Issue 11, 2008*.
  - ▷ Type Reconstruction for General Refinement Types. With Cormac Flanagan. In *Proceedings of the European Symposium on Programming, 2007 (ESOP'07)*.
  - ▷ SAGE: Hybrid Checking for Expressive Specifications. With Jessica Gronski, Aaron Tomb, Cormac Flanagan, and Stephen Freund. In *Proceedings of the Workshop on Scheme and Functional Programming, 2006 (SFP'06)*.

2000 – 2004     **Senior Web and Database Programmer**     Cityspan Technologies

- Designed and took part in implementing all aspects of YouthServices.net
- Designed data-driven architecture and XML-based customization language
- Implemented and optimized complex database queries for reporting (Transact-SQL)
- Designed, maintained, and optimized SQL Server 7.0/2000 Database schema
- Researched and experimented with emerging trends in database schema
- Designed and implemented backend object model and business logic (VBScript, C#)
- Designed and implemented traditional web frontends and later AJAX frontends
- Researched and began implementation of migration path from VBScript/ASP to C#/ASP.Net
- See also [www.cityspan.com](http://www.cityspan.com) and [www.youthservices.net](http://www.youthservices.net)

## **Education:**

### **Master of Science in Computer Science**

University of California, Santa Cruz

- Emphasis in Programming Languages
- Four-time recipient of the Regents Fellowship

### **Graduate summer schools on programming languages**

University of Oregon

- *2008 Summer School on Logic and Theorem Proving in Programming Languages*
- *2007 Summer School on Language-Based Techniques for Integrating with the External World*
- *2006 Summer School on Language-Based Techniques for Concurrent and Distributed Systems*

### **Bachelor of Science in Computer Science**

University of California, Berkeley

- Emphasis in Computer Science Theory
- Recipient of the National Merit Scholarship

### **Summary of Selected Class Experience**

- Foundations of Programming Languages
- Design of Programming Languages
- Types and Programming Languages
- Computer Architecture
- Combinatorial Algorithms and Data Structures
- Algorithms and Complexity
- Foundations of Parallel Computation
- Concurrency and Transactional Memory
- History of Mathematics
- Group and Ring Theory
- Advanced Linear Algebra
- Advanced Graph Theory and Algorithms
- Computational Geometry
- Machine Learning
- Survey of Distributed Systems
- Games in Design and Control

References available upon request