

Tharpe Stephen Strickland IV

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Work History

Research Associate Aug. 2012 - current
University of Maryland College Park, MD

- Developed a dynamic type system for the Ruby programming language.
- Developed checked specifications for Ruby domain-specific languages.
- Co-taught the course CMSC 631: *Program Analysis and Understanding*.

Graduate Research Assistant Nov. 2004 - Aug. 2005, Sep. 2007 - Aug. 2012
Northeastern University Boston, MA

- Extended the Racket contract system to protect first-class modules, first-class classes, and values with mutable state.
- Proposed and implemented non-uniform variable-arity polymorphism.
- Designed models of these features and proved these models sound.
- Implemented the models in PLT Redex to provide usable prototypes.

Software Engineer Nov. 2005 - Feb. 2008
Reflex Security, Inc. Atlanta, GA

- Programmed and maintained software in C and Python for a network security sensor.
- Investigated and implemented algorithms for detecting malicious network traffic.
- Ported the existing software base to a platform provided by Bivio Systems and to the IBM BladeCenter platform.
- Implemented changes to the development workflow to streamline the process for adding new features and bugfixes while increasing peer review.

Graduate Research Assistant May 2002 - Aug. 2004
Georgia Institute of Technology Atlanta, GA

- Developed the Bottom Up Beta Substitution lambda calculus engine.
- Implemented BUBS and other LC systems in both Standard ML and C.

Linux Distribution Developer (Volunteer) Jan. 2000 - July 2007
Debian GNU/Linux

- Packaged software for inclusion in the Debian GNU/Linux distribution
- Discussed and voted on issues concerning the Debian Project and the distribution
- Provided help for users of the distribution via IRC, via mailing list, and in person

Skills

Programming Languages: Bourne and Bash shell scripting, **C**, **C++**, Haskell, Java, Lisp, Objective C, Perl, Python, **Racket**, **Ruby**, Scheme, Smalltalk, Standard ML

Natural Languages: Fluent spoken/written English, advanced spoken/written German

Miscellaneous: Strong research/implementation skills, Linux/Mac OS X systems administration

Education

Northeastern University Boston, MA
Ph.D., Computer Science, Aug. 2012
Specialization: Programming languages
Dissertation Title: *Scaling Contracts to Realistic Languages*
Advisor: Matthias Felleisen

Georgia Institute of Technology Atlanta, GA
M.S., Computer Science, May 2004
Specialization: Programming languages and compilers
Project Advisor: Olin Shivers

Georgia Institute of Technology Atlanta, GA
B.S., Computer Science, May 2002
Specializations: Systems, Networking, Graphics
Graduated with highest honors (GPA 3.77)

Publications

Constraining Delimited Control with Contracts. Asumu Takikawa, T. Stephen Strickland, and Sam Tobin-Hochstadt. ESOP 2013.

The Ruby Type Checker. Brianna M. Ren, John Toman, T. Stephen Strickland, and Jeffrey S. Foster. OOPS track at SAC 2013.

Gradual Typing for First-Class Classes. Asumu Takikawa, T. Stephen Strickland, Christos Dimoulas, Sam Tobin-Hochstadt, and Matthias Felleisen. OOPSLA 2012.

Chaperones and Impersonators: Run-time Support for Reasonable Interposition. T. Stephen Strickland, Sam Tobin-Hochstadt, Robert Bruce Findler, and Matthew Flatt. OOPSLA 2012.

Contracts for First-Class Classes. T. Stephen Strickland and Matthias Felleisen. DLS 2010.

Contracts for First-Class Modules. T. Stephen Strickland and Matthias Felleisen. DLS 2009.

Nested and Dynamic Contract Boundaries. T. Stephen Strickland and Matthias Felleisen. IFL 2009.

Practical Variable-Arity Polymorphism. T. Stephen Strickland, Sam Tobin-Hochstadt, and Matthias Felleisen. ESOP 2009.

Research Interests

- Protection of code components through declarative specifications
- Development of type systems and contract systems for protecting and migrating software written in dynamic languages.
- Efficient implementation of functional and object-oriented programming languages

References available on request.