

# Dr. Yoav Zibin

<http://www.flashtogether.com/yoavzibin>

[yoav.zibin@gmail.com](mailto:yoav.zibin@gmail.com)

Address: 226 west 78, NYC, NY, USA

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## Research Interests

Object-oriented language (OOL) design and implementation. Designing OOL extensions, e.g., for expressing immutability and ownership. Efficient implementation of OOL runtime environment, such as subtyping tests, method dispatching, and field access.

Multiplayer games, social and viral applications.

## Education and Research Experience

**Postdoctoral position** 9/2006–5/2007

Program Analysis Group at MIT, Cambridge, MA, USA. Advisor: Michael D. Ernst.

Performed research on collaborative learning for security and repair in Windows applications, using instrumentation and dynamic analysis.

Also, extended Java with reference and object immutability.

**CTES Scholarship** 9/2004–7/2005

University College London (UCL), UK

Business training (short MBA) in Imperial College, Cambridge, and London Business School.

Implemented and evaluated an algorithm for efficient memory management for mobile phones, collaborating with UCL and Symbian.

**Post-doctoral position** 4/2004–9/2004

Technion—Israel Institute of Technology. Advisor: Yossi Gil.

Extended all papers to a journal version.

**Ph.D. in Computer Science** 2/2002–5/2004

Technion—Israel Institute of Technology. Advisor: Yossi Gil.

GPA: 96.5

Thesis: *Efficient Algorithms for the Runtime Environment of Object-Oriented Languages*

**M.Sc. in Computer Science** (transferred to direct Ph.D. studies) 11/1999–2/2002

Technion—Israel Institute of Technology. Advisor: Yossi Gil.

Thesis: *Efficient Subtyping Tests*

**B.A. in computer science** (in the Technion's excellence program) 10/1997–8/1999

Technion—Israel Institute of Technology

GPA: 98.2

Valedictorian (highest GPA among all graduates of this year)

## Patents

Provisional Patent Application No. 61099575, by Y. Zibin, 9/2008

assigned to Come2Play, for *Secure Client-Side-Only Multiplayer Gaming API*

U.S. Patent Application No. 10/146,141, by Y. Zibin and Y. Gil, 5/2002

assigned to Technion, for *A Method of Encoding A Dataset*

## Employment Record

<b>Software Engineer in Google</b>	10/2011–now
Working on video ads in DoubleClick For Publishers.	
<b>Research Staff Member in IBM TJ Watson</b>	4/2010–10/2011
Working on language design and the front-end compiler for the X10 language.	
<b>CTO and co-founder of Come2Play</b>	8/2005–9/2006, 6/2007–8/2009
Founded Come2Play, an online multiplayer gaming platform.	
Developed a <i>Flash</i> front-end and a <i>Java</i> and <i>MySQL</i> back-end.	
Patented an API for developing secure multiplayer games.	
<b>Teaching Assistant</b>	9/2004–7/2005
Computer Science Department, University College London (UCL)	
<b>Lecturer</b>	10/2003–3/2004
Computer Science Department, Technion—Israel Institute of Technology	
<b>Teaching Assistant</b>	11/1999–9/2003
Computer Science Department, Technion—Israel Institute of Technology	
<b>Researcher and Programmer in IBM research lab</b>	8/1999–10/1999
Formal Verification Department, IBM, Haifa, Israel.	
Coded heuristics for reordering BDD and for the boolean satisfiability problem.	

## Awards

<b>ACM SIGSOFT Distinguished Paper Award</b>	FSE'07
<b>Excellent Teaching Assistant Award</b>	Spring 2002
<b>Hershel Rich Technion Innovation Award</b>	June 2002
<b>VATAT—elite technology scholarship</b>	2/2001–3/2004
<b>Excellence scholarship</b>	1998–2000

## Journal papers

TOPLAS = *ACM Transactions on Programming Languages and Systems*

MSCS = *Mathematical Structures in Computer Science*

TOPLAS	Y. Gil, W. Pugh, G. E. Weddell, <u>Y. Zibin</u> . Two-Dimensional Bi-Directional Object Layout, Volume 30, Issue 1, November 2008, pp 1–38.
TOPLAS	Y. Gil, <u>Y. Zibin</u> . Efficient Dynamic Dispatching with Type Slicing, Volume 30, Issue 1, November 2007, pp 5–58.
MSCS	Y. Gil, <u>Y. Zibin</u> . Randomized Algorithms for Isomorphisms of Simple Types, Volume 17, Issue 3, June 2007, pp 565–584.
MSCS	Y. Gil, <u>Y. Zibin</u> . Efficient Algorithms for Isomorphisms of Simple Types, Volume 15, Issue 5, October 2005, pp 917–957.
TOPLAS	Y. Gil, <u>Y. Zibin</u> . Efficient Subtyping Tests with PQ-Encoding, Volume 27, Issue 5, September 2005, pp 819–856.

## Conferences with proceedings

- SPLASH'10 Y. Zibin, A. Potanin, P. Li, M. Ali, M. D. Ernst. Ownership and Immutability in Generic Java.
- CGAT'10 Y. Zibin. JuryAPI: Secure Client-Side-Only Multiplayer Gaming API.
- SOSP'09 J. Perkins, S. Kim, S. Larsen, S. Amarasinghe, J. Bachrach, M. Carbin, C. Pacheco, F. Sherwood, S. Sidiroglou, G. Sullivan, W. Wong, Y. Zibin, M. D. Ernst, M. Rinaud. Automatically Patching Errors in Deployed Software.
- FSE'07 Y. Zibin, A. Potanin, M. Ali, S. Artzi, A. Kiezun, M. D. Ernst. Object and Reference Immutability using Java Generics (received Distinguished Paper Award).
- DISC'03 Y. Zibin. Condition-based Consensus in Synchronous Systems.
- ECOOP'03 Y. Zibin, Y. Gil. Two-Dimensional Bi-Directional Object Layout.
- POPL'03 Y. Zibin, Y. Gil, J. Considine. Efficient Algorithms for Isomorphisms of Simple Types.
- POPL'03 Y. Zibin, Y. Gil. Incremental Algorithms for Dispatching in Dynamically Typed Languages.
- OOPSLA'02 Y. Zibin, Y. Gil. Fast Algorithm for Creating Space Efficient Dispatching Tables with Application to Multi-Dispatching.
- OOPSLA'01 Y. Zibin, Y. Gil. Efficient Subtyping Tests with PQ-Encoding.

## Courses taught

- 3C13/D6 Database and Information Management Systems, UCL. (T.A., Term2, 2005)
- 3C11 Functional Programming, UCL. (T.A., Term2, 2005)
- 1008 Principles of Programming, UCL. (T.A., Term2, 2005)
- 1B12 Theory I, UCL. (T.A., Term1, 2005)
- 1007 Principles of Programming, UCL. (T.A., Term1, 2005)
- 234117 Introduction to computer science, Technion. (Lecturer, 2004)
- 234319 Programming Languages, Technion. (T.A., 2000-2002)
- 236700 Software Design, Technion. (T.A., 2003)
- 236703 Object-Oriented Programming, Technion. (T.A., 2002)

## Languages

Fluent in Hebrew, English, and Spanish. Basic in Portuguese and Mandarin.

## References

Yossi Gil	yogi@cs.technion.ac.il
Erez Naveh	erez@come2play.com
Michael D. Ernst	mernst@cs.washington.edu
Alex Potanin	alex@ecs.vuw.ac.nz
Liran Katzir	lirank@yahoo-inc.com
Shay Artzi	artzi@csail.mit.edu

## Programming languages

I worked as a programmer in my startup and I'm working as one in IBM research (we also attend conferences, write papers, and design the X10 language, but 90% of my time is still programming in Java and X10). Used CVS and SVN for source control.

1. **Java:** expert (4 years experience)

Wrote a standalone java server for my startup (come2play) that handles millions of users (scaled up to 5000 concurrent user connections). Used java.nio package, wrote my own lock extension that prevent deadlock, logging, monitoring, etc.

Working on the front-end compiler for the X10 programming language (parsing, semantic checks, wrote dataflow analysis algorithms for definite initialization of objects, etc).

2. **Flash ActionScript 2 and 3:** expert (3 years experience)

Wrote the client side container and several games for my startup. Handled graphics, animations, GUI, events (network, timers, mouse, and keyboard events). (In the startup, I also wrote **PHP** code for our facebook apps, **AJAX** code, **javascript** and **HTML**)

3. **MySQL:** expert (3 years experience)

Wrote MySQL code (our startup runs MySQL replication using a ring of 2 servers; handling 5 million users per month), designed the DB (indices, foreign keys, constraints, triggers, stored procedures, etc).

4. **C and C++:** experienced (2 year)

Taught C and C++ in several courses in the Technion: Introduction to CS (taught C), OOP (taught C++), Software design (taught C++ and Eiffel), and Programming languages (taught Pascal, Prolog and ML). It involved writing and checking big student projects.

Wrote the software artifacts of my PhD in C++ (Implementation and evaluation of my PhD algorithms; 125KB of code.)

## Operating systems

I mostly wrote code which is platform independent. In the startup, I have configured and monitored both windows 64 bit servers, and unix servers. Wrote several scripts for monitoring the servers (using cron jobs). Used Amazon cloud (created images of our servers). Experience in writing ant build scripts, unix commands, and cygwin.