

# Nikos Vasilakis

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## Employment

Summer 2012

Computational Medicine Center Software Engineer Intern  
*Thomas Jefferson University, Philadelphia, USA*

- Built Handsfree, an automation tool for RNA mapping
- Full implementation (Java, XML & XML Schema, Twitter Bootstrap)
- Domain-specific language for asynchronous job control
- System administration (RHEL) & scripting (Python, Bash)

Jan 2009 - Jun 2011

EduTubePlus LS-tool Lead Developer  
*Research Academic Computer Technology Institute, Athens, GR*

Team leader of a 17-partner European media project offering collaborative services for the use of video in education

- Implementation of the middle-tier (Java, Hibernate, DAO)
- Implementation of build-automation & reporting tools (Bash, Ant & Zsh)
- Optimization of the database architecture
- Work-package integration

Mar 2008 - Oct 2009

Distributed Systems Lab Research Assistant  
*Research Academic Computer Technology Institute, Patras, GR*

Research and development on the award-winning FinN platform - a framework for developing entertainment interactive systems and pervasive applications on wireless sensor networks.

## Technical Skills (selected)

• <code>bash</code> POSIX shell with higher-order functions & function composition	Haskell, Cabal, Git
• <code>NouVeau</code> HTTP server & servlet container with distributed object caching	Java, Threads, Servlets, FreePastry (DHT), BerkeleyDB
• <code>enoté</code> beautiful to-do management for Linux (Gnome) that syncs across devices	Vala, GObject, SQLite, JSON, Git
• <code>yippee!</code> Distributed mini search engine (with crawler, indexer, pagerank, etc.)	Java, Ant, Servlets, BerkeleyDB, Hadoop, EC2, Git (teamwork)
• <code>gistly</code> Embeddable tag-cloud gists of reviews and articles <i>à la</i> wordle	JS, Node.js, Bootstrap, Redis, Git
• Mail server, client & shell implementation <i>Operating Systems course</i>	C, Threads, Sockets BSD Unix, Mercurial
• Social-nets webapp exercising associative queries <i>Database Systems course</i>	Oracle, MySQL, XQuery, GWT, Java, JS (teamwork)

Also, extensive knowledge of Distributed and Operating Systems, Git, Shell scripting; good knowledge of Assembly, Lua, Python, SVN, Hg, Coq, SQL, XML\*.

## Publications (selected)

U.Dhawan, N.Vasilakis, R.Rubin, S.Chiricescu, J.M.Smith, T.F.Knight Jr., B.C.Pierce, and A.DeHon. *PUMP: a Programmable Unit for Metadata Processing*. In Proc. the 3rd ACM Workshop on Hardware and Architectural Support for Security and Privacy, Minneapolis, MN, USA, June 2014.

P.Loher, N.Vasilakis, J.Malamon, H.Chen, and I.Rigoutsos. *HandsFree: Next Generation Sequence Processing, Mapping and Analysis Made Easy*. In Proc. 9th International Conference on Data Integration in the Life Sciences (DILS2013), Montreal, QC, Canada, July 2013.

## Education

2017 Ph.D. in Computer Science  
(exp) **University of Pennsylvania, USA**  
Focus: Distributed Operating Systems and Security

2013 M.Sc. in Computer Science  
**University of Pennsylvania, USA**

2010 Dipl. in Computer Engineering & Informatics  
(5<sup>yr</sup>) **University of Patras, Greece**  
Thesis: Design & Implementation of a Novel Application of Ubiquitous Computing Using Interactive Installations

## Research Projects (in progress)

**Andromeda: Distributed OS for the commodity cloud**  
A novel operating system tailored to the data cataclysm. It comes with a nanokernel runtime, tracing just-in-time compilation, automatic memory management, linguistic abstractions for the cloud, transparent object distribution, process migration, and a distributed, labeled, flat file system. Still at the stage of nucleosynthesis!

✉ **mail: Usable secure email communication**

User-friendly alternative to the PGP protocol; it uses transparent-to-user, ephemeral keys (à la OTR messaging) and the NaCl library. It offers authentication, encryption, and selective forward secrecy, and comes as a browser extension or a (modified) standalone email client.

**Tipswitch: Secure networking stack for SAFE**

Compartmentalized networking protocol stack (IP, ICMP, UDP, TCP) for DARPA SAFE, a clean-slate redesign of hardware, operating systems, programming languages and applications with a focus on secure cloud hosts.

## Honors and Awards

- 2014: NYCML 3<sup>rd</sup> place (>70 participants), NYC Media Lab Annual Summit (gistly: \$250)
- 2014: Zahn Competition Runner-up, CCNY Zahn Innovation Center (gistly: \$2,000)
- 2010: Tech Excellence Award, PC & T3 Magazine (FinN)
- 2009: Golden Creative Showcase Award, 5th ACM/SIGCHI Conf. on Advances in Computer Entertainment (FinN)
- 2008: Best Demo Award, 5th IEEE Conf. on Mobile Ad-hoc and Sensor Systems (FinN)
- 2003: Graduation Distinction, Ministry of Education

## Languages

English, Greek (fluent); Italian (good); French, Spanish (basic)

## Interests and Activities

swimming, music synthesis, ancient civilizations, open-source ecology, t-shirt design, board games, tennis, travelling, cooking, readability, digital photography, ideas