

Orestis Polychroniou

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EDUCATION

COLUMBIA UNIVERSITY

PH.D. IN COMPUTER SCIENCE

Summer 2017 (exp.) | New York, NY
Field: Database Systems
Advisor: Kenneth A. Ross
Department of Computer Science

M.PHIL. IN COMPUTER SCIENCE

April 2013 | New York, NY
Field: Database Systems
Department of Computer Science

M.SC. IN COMPUTER SCIENCE

December 2012 | New York, NY
GPA: 4+/4
Department of Computer Science

UNIVERSITY OF ATHENS

B.SC. IN COMPUTER SCIENCE

September 2010 | Athens, Greece
GPA: 9.35/10 (in top 1% of dept.)
Department of Informatics & Telecommunications

TECHNICAL SKILLS

PROGRAMMING LANGUAGES:

C • C++ • Java • Python • Prolog • Haskell • AspectJ • Bash & C Shell

PROGRAMMING PARADIGMS:

Procedural • Logic • Functional • Object Oriented • Aspect Oriented

DATABASE LANGUAGES:

SQL • DDL • DML • pl/SQL

DATABASE SYSTEMS:

OracleDB • PostgreSQL • MySQL

SYSTEM PROGRAMMING:

POSIX • BSD • GNU/Linux • Solaris

PARALLEL PROGRAMMING:

Threads (POSIX/Linux/C++11/Java) •

Processes (POSIX) • OpenMP •

TCP/IP Sockets (POSIX) • MPI

ASSEMBLY LANGUAGES (& SIMD):

x86/x64 (& SSE/AVX/MIC) • MIPS •

ARM (& NEON) • SPARC • PPC

OPERATING SYSTEMS:

Linux • Windows • BSD • Solaris

MARKUP & WEB LANGUAGES:

PHP • HTML • CSS • XML • JS

OTHER SKILLS:

LaTeX • OpenGL • CGAL (Geometry)

WORK EXPERIENCE

COLUMBIA UNIVERSITY | RESEARCH ASSISTANT & PH.D. CANDIDATE

September 2011 - | New York, NY

- Hardware Conscious Database Systems (Ph.D. Thesis with Kenneth A. Ross)
- Query Acceleration using Complex CPU Features (e.g. SIMD Vectorization)
- Query Execution by Adapting to Memory Hierarchies (e.g. RAM & Network)

AMAZON WEB SERVICES | RESEARCHER & ENGINEERING INTERN

May 2016 - August 2016 | Palo Alto, CA

- Optimizations for Analytical Databases on the Cloud & Amazon Redshift

ORACLE LABS | RESEARCHER & ENGINEERING INTERN

May 2014 - August 2014 | Belmont, CA

- SIMD Vectorization for In-Memory Database Operators

May 2013 - August 2013 | Belmont, CA

- Network Efficient Distributed Joins for Parallel Databases

May 2012 - August 2012 | Belmont, CA

- In-Memory Query Acceleration using Complex CPU Features

UNIVERSITY OF ATHENS | UNDERGRADUATE RESEARCH

March 2010 - October 2010 | Athens, Greece

- Distributed Workflow Optimization (B.Sc. Thesis with Yannis E. Ioannidis)

PUBLICATIONS

SIMD-ACCELERATED REGULAR EXPRESSION MATCHING

in DaMoN, 2016 | by Eva Sitaridi, Orestis Polychroniou & Kenneth A. Ross

RETHINKING SIMD VECTORIZATION FOR IN-MEMORY DATABASES

in SIGMOD, 2015 | by Orestis Polychroniou, Arun Raghavan & Kenneth A. Ross

EFFICIENT LIGHTWEIGHT COMPRESSION ALONGSIDE FAST SCANS

in DaMoN, 2015 | by Orestis Polychroniou & Kenneth A. Ross

ENERGY ANALYSIS OF HARDWARE AND SOFTWARE RANGE PARTITIONING

in TOCS, 2015 | by Lisa Wu, O. Polychroniou, R. J. Barker, M. A. Kim & K. A. Ross

A COMPREHENSIVE STUDY OF MAIN-MEMORY PARTITIONING AND ITS

APPLICATION TO LARGE-SCALAR COMPARISON- AND RADIX-SORT

in SIGMOD, 2014 | by Orestis Polychroniou & Kenneth A. Ross

TRACK JOIN: DISTRIBUTED JOINS WITH MINIMAL NETWORK TRAFFIC

in SIGMOD, 2014 | by Orestis Polychroniou, Rajkumar Sen & Kenneth A. Ross

VECTORIZED BLOOM FILTERS FOR ADVANCED SIMD PROCESSORS

in DaMoN, 2014 | by Orestis Polychroniou & Kenneth A. Ross

HIGH THROUGHPUT HEAVY HITTER AGGREGATION

FOR MODERN SIMD PROCESSORS

in DaMoN, 2013 | by Orestis Polychroniou & Kenneth A. Ross

AWARDS

Gerontelis Fellowship for Greek graduate students in the US	2016
Research funding gift from Oracle (grant to research advisor)	2014/15/16
Andrew P. Kosoresow Memorial Award for teaching at Columbia	2013
Undergraduate Class Valedictorian at the University of Athens	2011
University of Athens Scholarship for Top Undergraduates	2011
Greek State Scholarships Foundation for Top Undergraduates	2007/08/10