

Oliviu C. GHICA

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EDUCATION

- Ph.D.** Electrical Engineering and Computer Science, (Large Scale Wireless Sensor Networks) 2011
Northwestern University (GPA 4.0/4.0)
Thesis: “*Extending Lifetime in Large Scale Wireless Sensor Networks: Secure Multipath Routing and Load-Aware Tracking*”
- M.Sc.** Electrical Engineering and Computer Science, (SIDnet-SWANS Simulator for Sensor Networks) 2006
Northwestern University (GPA 4.0/4.0)
Thesis: *Controlled Multi-Path Routing and Sensor Networks Lifetime*
- B.Eng.** (with Honors), Control Systems and Computer Science 2003
“*Politehnica*” *University of Bucharest* (GPA 3.9/4.0 equivalent)

SKILLS

Network Technologies & Standards

Familiar with **Z-Wave & ZigBee (802.15.4)** based network integration
Sensor network based solutions for energy-efficiency, security, entertainment and home automation
Experienced with large-scale sensor network deployments in simulated environments
Experienced with development of simulators
(e.g. developer of SIDnet-SWANS, a large-scale wireless sensor network simulator)

Control Systems Engineering

Linear systems control: PID, Fuzzy, Ziegler-Nichols tuning methodology, cascade control
Non-linear systems control: feedback & trajectory linearization, back-stepping
Dynamic system identification, controllability, observability & controllability
Adaptive, optimal, robust and stochastic control.

Web Technologies

RESTful Web Services programming
Relational Data Modeling & SQL
Ruby on Rails (self-training) web development framework
Open Source Technologies integration

Software Development Project Management

OpenUP (RUP + Agile) framework for incremental and iterative software development

Business Technical Analysis

Experience in business analysis, requirements definition, building/deployment of systems solutions

Service Management

ITIL v3 service delivery

Quality Assurance

Advocate of Test Driven Development (**TDD**)
Development with **jUnit/TestNG** frameworks

Code Development

Java (7 years), **J2EE** (2 years), **SQL** (2 years),
C/C++, **Ruby** (self-training, < 1 year), **nesC**, **HTML**, **Assembly**, shell scripting
Object-Oriented analysis and design, algorithm development, multithreaded & **MPI** programming

Personal Skills

Excellent problem solving abilities
Excellent written and communication skills
Excellent multi-tasking abilities, able to prioritize tasks and projects
Good organizational skills
Fast learner with diverse-domain knowledge, able to correlate ideas from diverse fields to innovate
Patient, detail oriented, favors quality rather than quantity
Team-oriented, sociable and very open to share knowledge with others

Miscellaneous

HW-CAD: Analog & Digital Circuit Design (**OrCad**), **PCB** design, **Matlab**, **Simulink**

PROFESSIONAL EXPERIENCES

INDUSTRY

2010-2011

True Consulting, LLC, Oak Brook, USA (Consultant)

Program Architect & Lead

- Designed an end-to-end monitoring solution based on a SaaS model, compliant with the latest APM standards and technologies (client: largest restaurant chain in the world: McDonald's corporation), including browser-level end-user experience, web-tier, application-tier, DB-tier, WAN, message queues, and OS-level monitoring, including JVM/.Net real-time profiling for rapid root-cause analysis. Designed both the enterprise-level solution, as well as the underlying processes and procedures, assignment of roles and responsibilities, and ITIL v3-compliant service delivery management.
- Lead a team of distributed on-shore and off-shore resources to provide 24x7/365 monitoring coverage and preparedness for mission and business critical applications
- Manage war-room/crisis incidents for rapid diagnosis and resolution
- Periodic review of alert and event correlation configurations for proactive detection of incidents

Enterprise Architect

- Designed infrastructure for Human Resource Management Solution for high-availability and global single instance model, based on Oracle, V-Block, EMC/FAST technologies
- Worked in a team of architects for designing an Active Directory-based security layer and integration with Oracle-based (Oracle EBS, Oracle HRMS) applications.

Business Technical Analyst

- Subject matter expert, demonstrate expertise in configuration of supported applications
- Performed periodic Risk Assessment & Business Impact Analysis for mission critical applications
- Worked in a design team for a global disaster recovery solution.

2009

World Evolved Services, LLC, New York, USA (Startup/Hedge Fund)

System Analyst & Software Engineer

- Developed core infrastructure for a secure, scalable and high-performance distributed flow control system for a large scale service-oriented system. Specific duties include research of recently-published approaches to DIFC systems, formal specification of the solution, feasibility and projected performance analysis, project planning, risk assessment, scheduling, progress tracking and implementation. Post-development, I conducted Quality Assurance tests, performance profiling, optimizations and documentation.
- Implemented two high-speed services:
 - (1) a core multithreaded session service to support user/service authentication and correspondingly, session management
 - (2) XEV, a proof of concept complex event processor under the new infrastructure.
- *Skills & Tools*: J2EE, RESTful Web Services, MySQL, JUnit, JBoss, Jira
OpenUP (RUP+Agile) based project planning

2006

BEA Systems, Inc., San Francisco, USA

Software Engineer

- Developed systems for BEA's mainline "complex event processing engine", a core component of the WebLogic Event Server WL EvS. R&D, focused on performance profiling, tuning and optimizations, employing critical path analysis. Project served as middleware component in high-speed trading industry, where both latency and throughput performance are critically important.
- *Skills & Tools*: Java, Algorithms, jRockit, jProfiler, SOA, Perforce

2002-2003

Motorola DSP Center, Bucharest, Romania

SW/HW Engineer

- Prototyped software/hardware solutions based on Motorola DSP 56858 chips, for a frequency analyzer towards model-identification of dynamic systems in control systems engineering.
- *Skills & Tools*: C++(CodeWarrior), Assembling, Circuit & PCB design (OrCad)

R & D
2003-2011

Northwestern University, USA

- Developed "SIDnet-SWANS", an open-source wireless sensor network simulator
Under Northrop Grumman Corp. grant PO 8200082518, NSF (NSF), IIS-0325144/03, NSF-CNS-0910952
- Research in spatio-temporal data management, distributed event-based processing and routing in large scale distributed wireless embedded systems (Wireless Sensor Networks). Recent focus on performance and security analysis of routing protocols, addressing confidentiality, integrity and authentication concerns.

TEACHING

Courses Taught as Teaching Assistant

- **Data Management and Information Processing - (4x)**
- **Advanced Programming (C/C++) for Computer Engineers (2x)**
- **Information Processing in Wireless Sensor Networks - (2x)**
- **Introduction to Computer Systems (C, OO) - (1x)**
- Applications of Electronic Devices – (1x)
- Introduction to Feedback/Control Systems – (1x)
- Fundamentals of Circuits – (2x)

AWARDS

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|---|-----------|
| ▪ Terminal Year Fellowship
Department of EECS, Northwestern University | 2010 |
| ▪ Best Teaching Assistant Award
Department of EECS, Northwestern University | 2009 |
| ▪ Searle Center for Teaching Excellence Award for International Scholar
Northwestern University | 2005 |
| ▪ Walter P. Murphy Fellowship awarded by the Department of ECE, Robert R McCormick School of Engineering & Applied Sciences, Northwestern University | 2004-2005 |
| ▪ First Prize for Scientific Communications – Control & System Engineering chapter, ``Politehnica'' University of Bucharest | 2003 |
| ▪ Awarded “ Diploma of Excellence for Outstanding Professional Results ”
``Politehnica'' University of Bucharest | 2003 |
| ▪ Merit Scholarship awarded for the duration of undergraduate studies
``Politehnica'' University of Bucharest | 1998-2003 |

REFERENCES

Peter Scheuermann

Professor

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Goce Trajcevski

Assistant Chairman

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EECS Department
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Sausan Yazji

Manager,

Enterprise Architect, McDonald's Corp.

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Nikolaos Michalakis

Systems Team Manager,

WorldEvolved Services, LLC

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Mr. Larry Dino

WLEvS Manager (until 2007)

BEA Systems, Inc
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Alex Alves

Software Architect (until 2007)

BEA Systems, Inc

Currently: Software Architect (2008)

Oracle Inc.
alex.alves@oracle.com
650-587-8823

1. **Selecting Tracking Principals with Epoch Awareness**
Oliviu C. Ghica, Goce Trajcevski, Fan Zhou, Roberto Tamassia, Peter Scheuermann
18th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems – Nov. 2010
2. **Improving the Energy Balance of Field-based Routing in Wireless Sensor Networks**
Goce Trajcevski, Oliviu C. Ghica, Peter Scheuermann, Marco Zuniga, Rene Schubotz, Manfred Hauswirth
Global Communications Conference (IEEE-Globecom) – December 2010
3. **Tracking-based Trajectory Data Reduction in Wireless Sensor Networks**
Goce Trajcevski, Oliviu C. Ghica, Ouri Wolfson, Ugo Buy,
Peter Scheuermann, Fan Zhou, Dennis Vaccaro
IEEE International Conference on Sensor Networks, Ubiquitous and Trustworthy Computing (SUTC),
Newport Beach, CA, 2010
4. **Controlled Multi-Path Routing in Sensor Networks Using Bezier Curves**
Oliviu C. Ghica, Goce Trajcevski, Peter Scheuermann, Nikolay Valtchanov, Zachary Bischof
The Computer Journal, 2010, accepted, to appear
5. **Trajectory Data Reduction in Wireless Sensor Networks** [to appear]
Oliviu C. Ghica, Goce Trajcevski, Ouri Wolfson,
Ugo Buy, Peter Scheuermann, Fan Zhou, Dennis Vaccaro
International Journal of Next-Generation Computing, 2010
6. **A Case for Meta-Triggers in Wireless Sensor Networks**
G. Trajcevski, N. Valtchanov, O. Ghica, P. Scheuermann, Z. Bischoff,
Eighth IEEE International Symposium on Network Computing and Applications, Cambridge, MA, 2009
7. **SIDnet-SWANS: A Simulator and Integrated Development Platform for Sensor Networks Applications**
Oliviu Ghica, Goce Trajcevski, Peter Scheuermann, Zachary Bischoff, Nikolay Valtchanov
The 6th ACM Conference on Embedded Networked Sensor Systems (SenSys), Raleigh, NC, 2008
8. **Alternating Multiple Tributaries + Deltas**
Goce Trajcevski, Oliviu Ghica, Peter Scheuermann, Roberto Tamassia, Isabel Cruz
Proc. International Workshop on Data Management for Sensor Networks (DMSN)
Auckland, New Zealand, 2008
9. **Alternating Routes in Sensor Networks**
Oliviu Ghica, Goce Trajcevski, Peter Scheuermann
Proc. Information Processing in Sensor Networks (IPSN), Nashville, USA
10. **CAR: Controlled Adjustment of routes and Sensor Networks Lifetime**
Goce Trajcevski, Oliviu Ghica, Peter Scheuermann
IEEE International Conference Mobile Data Management (MDM),
Nara, Japan, 2006
11. **Evolving Triggers for Dynamic Environments**
Goce Trajcevski, Peter Scheuermann, Oliviu Ghica, Anika Hinze, A. Voizard
International Conference on Extending Database Technology (EDBT),
Munich, Germany, 2006
12. **DualDSP Adaptive Control System**
Oliviu Ghica, Ioan Dumitrache, Costel Ilas, Daniel Brosteanu
International Conference on Control Systems and ComputerScience (CCSC),
Bucharest, Romania, 2003
13. **Numerical Techniques in Control Systems (Book)**
Ioan Dumitrache, Constantin Buiu, Oliviu Ghica
Published by Ed. Minerva,
Bucharest, Romania, 2003