Irem Aktug

CONTACT INFORMATION	Aliya Tower Apt 1904, floor 19 Khalifa Bin Zayed st (3rd street) Hamdan post office Al Markaziyah Abu-Dhabi, UAE	*Mobile:* +971 50 90 60 430 *E-mail:* irem@csc.kth.se

<small>CITIZENSHIP</small>

Turkish

<small>PROFESSIONAL</small>
<small>EXPERIENCE</small>

Identra, Istanbul, Turkey

Consult   **November 2008 to Present**

- Propose and develop research and commercial software projects

Kungliga Tekniska Högskolan, School of Computer Science and Communication
Sweden, Stockholm

Ph.D. Student   **August 2003 to October 2008**

- EU Project *Security of Software and Services for Mobile Systems*
  March 2005 to March 2007
  - Main (personal) scientific contributions are:
    - (i) Implementation and verification of monitor inlining as security enforcement mechanism
    - (ii) Static verification of correct monitor inlining using Floyd-like logic
    - (iii) Proof generation for correct monitor inlining to be used for certification of policy adherence in a proof-carrying code framework
  - Created the policy language ConSpec, the common language of the project
  - Participated in most of the project meetings, actively involving in critical discussions
  - Wrote most of KTH contributions to project reports and managed the integration of input from other partners for four project reports
  - The project got top mark from the reviewers: "Good to excellent project" (The project has fully achieved its objectives and technical goals for the period and has even exceeded expectations), and the project officer flagged it as having "substantial breakthrough character".
- Swedish Research Council (VR) Project *Sefros*
  August 2003 to March 2005
  The main (personal) scientific contribution is the development of a suitable representation for the state space of open system which allows:
  - (i) Verification of temporal logic properties
  - (ii) Visualization
  - (iii) Automatic extraction from open system specifications
- Teaching:
  - Introduction to Computer Science II
  - Formal Methods
  - C++ Programming
  - Introduction to Programming with Python
  - Data Structures with Python

- Applied Computer Science for Scientific Computing Master Programme

Middle East Technical University, Ankara, Turkey

Graduate Student   **September 2001 to August 2003**

- Performed a case study with the refinement calculator of Åbo Akademi, Finland, deriving an algorithm from specification
- Teaching:
  - Digital Design
  - Introduction to Computer Science with Scheme
  - Introduction to Numerical Methods

Dokuz Eylül University Computer Center, Izmir, Turkey

Web Programmer   **June 2000 to August 2000**

- Wrote Perl/PHP scripts for a software package that creates online conference organization sites including features such as interacting with a database using SQL queries and creating web pages on-the-fly

Aselsan, Ankara, Turkey

Assistant Software Engineer   **June 1999 to August 1999**

- Used OpenVMS terminals
- Wrote Fortran programs that create web pages which display repository information in the largest military supply company of Turkey

RESEARCH INTERESTS

Theoretical Computer Science, Formal Methods, Runtime Monitoring, Compositional Verification, Language-based Security

EDUCATION

Kungliga Tekniska Högskolan, Sweden, Stockholm

Ph.D., Theoretical Computer Science Group, CSC, KTH, October 2008

- Thesis Topic: Algorithmic Verification Techniques for Mobile Code
- Advisor: Doc. Dilian Gurov
- Co-advisor: Doc. Mads Dam
- Area of Study: Formal Methods

M.S., Computer Engineering, METU, August 2003

- Thesis Title: Deriving a Dynamic Algorithm for Batch Scheduling in the Refinement Calculus
- Advisor: Assoc.Prof.Dr. Halit Oguztüzün
- Area of Study: Formal Methods

B.S., Computer Engineering, METU, June 2001

- Final project: Implementation of a partition refinement algorithm for checking bisimulation equivalence in CCS
- Minor in Philosophy (History of philosophy track)

Publications

1. I. Aktug and D.Gurov, "Towards State Space Exploration Based Verification of Open Systems", in the Proceedings of the 4th International Workshop on Automated Verification of Infinite-State Systems (AVIS'05), April 2005, Edinburgh, Scotland

2. I. Aktug and D. Gurov, "State Space Representation for Verification of Open Systems", in the Proceedings of the 11th International Conference on Algebraic Methodology and Software Technology (AMAST '06), volume 4019 of Lecture Notes in Computer Science, pages 5-20, July 2006, Kuressaare, Estonia

3. I. Aktug and K. Naliuka, "ConSpec: A Formal Language for Policy Specification", in the Proceedings of The First International Workshop on Run Time Enforcement for Mobile and Distributed Systems (REM'07), volume 197-1 of Electronic Notes in Theoretical Computer Science, pages 45-58, September 2007, Dresden, Germany

4. I. Aktug and K. Naliuka, "ConSpec: A Formal Language for Policy Specification", presented at First Workshop on Formal Languages and Analysis of Contract-Oriented Software (FLACOS '07), October 2007, Oslo, Norway

5. I. Aktug, M. Dam and D. Gurov, "Provably Correct Runtime Monitoring", in the Proceedings of the 15th International Symposium on Formal Methods (FM '08), volume 5014 of Lecture Notes in Computer Science, pages 262-277, May 2008, Turku, Finland

6. M. Huisman and I. Aktug and D. Gurov, "Program Models for Compositional Verification", in the Proceedings of 10th International Conference on Formal Engineering Methods (ICFEM'08), volume 5256 of Lecture Notes in Computer Science, pages 147-166, October 2008, Kitakyushu, Japan

7. I. Aktug and K. Naliuka, "ConSpec: A formal language for policy specification", *Science of Computer Programming*, 74(1-2):2-12,2008

8. I. Aktug and M. Dam and D. Gurov, "Provably Correct Runtime Monitoring", Accepted for publication in *Journal of Logic and Algebraic Programming*

Summer Schools

Engineering Methods and Tools for Software Safety and Security, Summer School Marktoberdorf, 2005

Concurrency Theory, 32nd Spring School on Theoretical Informatics, 2004

Technical Skills

Programming: C, C++, Java, Java bytecode, Python, Ruby, Perl/PHP, Lisp, Scheme, ML, Prolog, UNIX shell scripting, Fortran

Applications: TeX, LaTeX, BibTeX, OpenGL, Matlab

Tools for Specification, Verification and Theorem Proving: SPIN, CWB, PVS, Isabelle, Esc/Java

Operating Systems: Linux/Unix, Microsoft Windows, OpenVMS

REFERENCES   Supervisors

- Assoc. Prof. Dilian Gurov, Department of Theoretical Computer Science, School of Computer Science and Communications, *KTH (Royal Institute of Technology)*, SE-100 44 Stockholm, Sweden
  tel: +46 8 790 81 98
  e-mail: `dilian@csc.kth.se`

- Assoc. Prof. Mads Dam, Department of Theoretical Computer Science, School of Computer Science and Communications, *KTH (Royal Institute of Technology)*,SE-100 44 Stockholm, Sweden
  tel: +46 8 790 6229
  e-mail: `mfd@kth.se`

- Assoc. Prof. Halit Oğuztüzün, Orta Dogu Teknik Universitesi Bilgisayar Muhendisligi Bolumu, Ankara, Turkey
  tel: +90 312 2105587
  e-mail: `oguztuzun@ceng.metu.edu.tr`

Senior Collaborator

- Prof. Fabio Massacci, Dipartimento di Informatica e Telecomunicazioni, *Universit di Trento*, Via Sommarive 14, I-38050 Povo (Trento), Italy
  tel: +39 0461 882086
  e-mail: `Fabio.Massacci@unitn.it`

Collaborators

- Andreas Lundblad, Ph.D. Student, Department of Theoretical Computer Science, School of Computer Science and Communications, *KTH (Royal Institute of Technology)*,SE-100 44 Stockholm, Sweden
  tel: +46 73 918 11 13
  e-mail: `lundblad@nada.kth.se`

- Katsiaryna Naliuka, Ph.D. Student, Dipartimento di Informatica e Telecomunicazioni, *Universit di Trento*,Via Sommarive 14, I-38050 Povo (Trento), Italy
  tel: +39 0461 882086
  e-mail: `naliuka@dit.unitn.it`

Teaching References

- Dr. Lennart Edsberg, Department of Numerical Analysis, School of Computer Science and Communications, *KTH (Royal Institute of Technology)*,SE-100 44 Stockholm, Sweden
  tel: +46 8 790 81 19
  e-mail: `edsberg@nada.kth.se`

- Dr. Mika Cohen, Department of Computing, Imperial College London, 180 Queen's Gate, London SW7 2AZ, Great Britain
  e-mail: mcohen1@imperial.ac.uk

- Dr. Christian Schulte, KTH/ICT/ECS, P.O. Box Forum 120, SE-164 40 Kista, Sweden
  tel: +46 8 790 4264
  e-mail: `cschulte@kth.se`

Other Colleagues

- Dr. Erek Gktürk, Identra, Esentepe Mah., Gazeteciler Sitesi, Ok İs Merkezi 13/1, 34394 Şişli, İstanbul, Turkey
  tel: +90 212 274 90 12
  e-mail: `erek@identra.com.tr`