Thomas Meyer

Birsstrasse 120 • CH-4052 Basel, Switzerland • +41 79 641 7065
thomas.meyer.ch@gmail.com • http://www.linkedin.com/in/thmeyer

Nationality	Swiss
Date of birth	December 3rd, 1974 (age 38)
Civil status	single, no children

Education

07/2007 – 12/2010 *(3 years 6 months)*
Ph.D., Computer Networks Group, University of Basel, Switzerland
- Dissertation: *"On Chemical and Self-Healing Networking Protocols"*, awarded **summa cum laude**

09/1995 – 02/2000 *(4 years 6 months)*
Dipl. El.-Ing. ETH (MSc Electrical Engineering), ETH Zurich, Switzerland
- Diploma thesis: *"µC-DSP Board"* (Controller board and embedded, object-oriented software for a distributed power source), marked **6.0**/6.0

08/1990 – 12/1993 *(3 years 5 months)*
Matura, Typus C, Gymnasium Muttenz, Switzerland

Research & Work Experience

01/2011 – **today** *(1 year 11 months)*
Postdoctoral Researcher & Lecturer, University of Basel, Switzerland
Computer Networks Group headed by Prof. Dr. Christian Tschudin
- Responsible lecturer for BSc-level courses "Computer Networks & Security", "Internet-Technologies", and "Anwendungen der Informatik"
- Invented a **generic language for the description of packet-shaping algorithms**
- Implemented a **software-defined flow-control engine** for the Linux kernel
- Co-supervised a Ph.D. student's research project on force-field-inspired methods to route mobile agents in a wireless sensor network

08/2011 – **today** *(50%, 1 year 4 months)*
Software Developer, Patton-Inalp Networks AG, Switzerland
- Optimizing the embedded Linux kernel for real-time media streaming
- Designing/Implementing in-device communication and configuration frameworks

07/2007 – 12/2010 *(3 years 6 months)*
Ph.D. Student, University of Basel, Switzerland
Computer Networks Group headed by Prof. Dr. Christian Tschudin
- Invented a **novel theory and engineering method to design, analyze and execute protocols** based on a stochastic model adopted from chemistry
- Successfully completed **SNF project "Self-Healing Protocols"**: arbitrary protocol code is able to heal itself from execution faults and attacks

01/2003 – 06/2007 (*4 years 6 months*)
Software Architect, Patton-Inalp Networks AG, Switzerland
- Coined the **software architecture** for the company's most successful product line (**VoIP gateways**)
- Introduced coding guidelines into an **international engineering team**, resulting in higher product reliability
- Designed/Implemented foundation libraries and frameworks for multi-protocol call-signalling (SIP, H.323, ISDN, FXS, FXO), for **efficient real-time packet processing** in the network stack, and for configuration (CLI, Web, SNMP)

04/2000 – 12/2002 (*2 years 9 months*)
Software Engineer, Patton-Inalp Networks AG, Switzerland
- Integrated protocol stacks (IP, H.323, SIP) to the company's VoIP gateway firmware
- Designed/Implemented management and device configuration software

07/1998 – 10/1998 (*4 months*)
Internship, Swisscom AG, Switzerland
- Implemented initial prototype of the web interface for Swisscom's directory services

02/1997 – 03/1997
07/1994 – 01/1995
06/1995 – 09/1995 (*1 year*)
Internship, Amt für Informatik, Kanton Basel-Landschaft
- Designed and implemented software for traffic pattern analysis in the frame-relay network of the canton's public administration
- Computer and network support

Teaching Experience

2011 – **today**
Lecturer, University of Basel, Switzerland
- "Anwendungen der Informatik", BSc course, 2h / week — Fall 2012
- "Internet-Technologies", BSc course, 1h / week — Spring 2012
- "Computer Networks & Security", BSc course, 4h / week — Spring 2011

2007 – **today**
Teaching assistant, University of Basel, Switzerland
- "Autonomic Computer Systems", MSc course — Fall 2008 – 2012
- "Computer Networks & Security", BSc course — Spring 2008 – 2010
- "Anwendungen der Informatik", BSc course — Fall 2007 – 2010

1996/1997
Student assistant, ETH Zurich, Switzerland
- Electronics lab — Winter 1996/1997

Other Activities

1995 – 1999
Freelancing IT Supporter for several local home care institutions, BL, Switzerland

01/1994 – 06/1994
01/1995 – 06/1995 (*1 year*)
Military Service, Swiss Armed Forces
- Übermittlungs-Rekrutenschule, Bülach
- Übermittlungs-Unteroffiziersschule, Bülach

Professional Skills

Research activities	• **Reliable and self-healing networking protocols** • **Design and verification of dynamic packet flow control algorithms** • Bio-inspired approaches to networking • Genetic algorithms and programming • Active networking
Networking	• Profound knowledge of the Internet stack (TCP/IP et al) and telephony protocols (SIP, H.323, ISDN, MGCP) • Experience in protocol design, implementation and optimization
Programming	• **Embedded software architecture, design and implementation, from prototype to mature industrial product with world-wide customer base** • C/C++ (expert), Python (good), Perl (basic), Shell Scripting (good), Java (basic)
Operating systems	• Excellent operator and developer experience in (embedded) Linux (user and kernel space), good operator experience on Windows and Mac OS X
Tools	• OMNeT++, MatLab, Git, Subversion, Eclipse, Automake, SCons, Buildroot
Hardware	• Implemented device drivers for different chip categories: MPC8xx, VoIP DSPs, Ethernet, E1T1, BRI, FXS/FXO, TSI; PLD software
Other CS topics	• Broad knowledge of **distributed systems, algorithms, computer security**
Leadership experience	• **Technical lead** in several software projects at Patton-Inalp Networks • Head of R&D ad interim (3 months: 06/2006 – 09/2006) at Patton-Inalp Networks • Supervised multiple Bachelor and Master theses at the University of Basel
Languages	• German: native • English: fluent • French: basic

Selected Publications

Thomas Meyer and Christian Tschudin: *"A Theory of Packet Flows Based on Law-of-Mass-Action Scheduling"*, 31th IEEE International Symposium on Reliable and Distributed Systems (SRDS 2012), Irvine, CA, USA, 2012

Massimo Monti, **Thomas Meyer**, Christian Tschudin, and Marco Luise: *"Signal Processing Applied to Chemically Inspired Communication Protocols"*, IEEE International Conference On Communications (ICC 2012), 2012

Thomas Meyer, Christian Tschudin: *"Robust Network Services with Distributed Code Rewriting"*, Book chapter in P. Lio, D. Verma: "Biologically Inspired Networking and Sensing: Algorithms and Architectures" , IGI Global, ISBN 978-1-61350-092-7, 2012

Thomas Meyer, *"On Chemical and Self-Healing Networking Protocols"*, Ph.D. Thesis, University of Basel, ISBN 978-3-033-27000-8, 2012

Igor Talzi, Massimo Monti, **Thomas Meyer**, Christian Tschudin: *"Force-Based Navigation in Wireless Sensornets"*, Proc. 2nd International Workshop on Mobility in Wireless Sensor Networks (MobiSensor'2011), Barcelona, 2011

Lidia Yamamoto and **Thomas Meyer**: *"Biochemically-Inspired Emergent Computation"*, Proc. 9th International Conference on Artificial Immune Systems (ICARIS 2010), Edinburgh, UK, In LNCS 6209, 320–321, Springer, 2010

Thomas Meyer and Christian Tschudin: *"Chemical Networking Protocols"*, Proc. 8th ACM Workshop on Hot Topics in Networks (HotNets-VIII), New York, NY, USA, 2009

Thomas Meyer, Lidia Yamamoto, Wolfgang Banzhaf, and Christian Tschudin: *"Elongation Control in an Algorithmic Chemistry"*, Proc. 10th European Conference on Artificial Life (ECAL 2009), Budapest, Hungary, In LNCS 5777, 267–274, Springer, 2011

Thomas Meyer, Lidia Yamamoto, and Christian Tschudin: *"A Self-Healing Multipath Routing Protocol"*, Proc. 3rd International Conference on Bio-Inspired Models of Network, Information, and Computing Systems (BIONETICS 2008), Hyogo, Japan, 2008

Thomas Meyer, Daniel Schreckling, Christian Tschudin, and Lidia Yamamoto: *"Robustness to Code and Data Deletion in Autocatalytic Quines"*, Transactions on Computational Systems Biology X, In LNBI 5010, 20–40, Springer, 2008

Thomas Meyer, Lidia Yamamoto, and Christian Tschudin: *"An Artificial Chemistry for Networking"*, Bio-Inspired Computing and Communication, 1st Workshop on Bio-Inspired Design of Networks (BIOWIRE 2007), Cambridge, UK, In LNCS 5151, 45–57, Springer, 2008

Lidia Yamamoto, Daniel Schreckling, and **Thomas Meyer**: *"Self-Replicating and Self-Modifying Programs in Fraglets"*, Proc. 2nd International Conference on Bio-Inspired Models of Network, Information, and Computing Systems (BIONETICS 2007), Budapest, Hungary, 2007