

Lusine Mkrtchyan

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EXPERIENCE

- University of Luzern** 03.2018-currently
Postdoctoral researcher (SNF project ACCORDs)
- Working on methodological advancements of configurational comparative research methods
 - Current focus – multi-value algebras, multiple-output minimization algorithms of switching circuits
- ETH Zurich (external staff at Swiss Re)** 01.2017-02.2018
Scientific collaborator
- Developed a probabilistic approach for risk/resilience assessment based on Bayesian Belief Networks
 - Identified key performance indicators (KPIs) grouped into technical, human and organizational factors
 - Organized a number of expert elicitation workshops at Swiss RE for BBN building and testing
- Paul Scherrer Institut, Switzerland** 01.2013- 12.2015
Postdoctoral Researcher
- Studied the use of Bayesian belief networks (BBNs) in Human Reliability Analysis (HRA)
 - Studied different algorithms to build BBN conditional probabilities with limited data
 - Conducted a comparative analysis of fuzzy expert and BBN based approaches for HRA
- Belgian Nuclear Research Center SCK•CEN** 09.2011- 12.2012
Postdoctoral Researcher
- Developed scenario-situation based safety culture self-assessment tool
 - Conducted focus groups and expert interviews for safety culture questionnaire development
 - Supervised master students working on expert elicitation tool for nuclear non-proliferation analysis
- University of Hasselt, Belgium** 03.2012- 07.2012
Invited researcher
- Developed clustering algorithms for analyzing data with cognitive maps
 - Studied the use of cognitive maps in traveler behavior analysis
- Institute for Advanced Studies, IMTLucca, Italy** 03.2008- 03.2011
PhD Researcher
- Studied the use of fuzzy set theory, cognitive maps and Bayesian networks for risk analysis
 - Applied the theoretical findings to different application fields
 - Published the results in conference proceedings and peer reviewed journals
- American University of Armenia** 05.2007- 08.2007
Teacher Assistant
- Assisted the professor to organize the lectures, home assignments and semester projects
- American University of Armenia** 02.2006- 05.2007
Laboratory Proctor
- Assisted the students to use dedicated software for different subjects' studies
- Gyumri Secondary School № 17 after G. Njdeh** 09.2000- 06.2005
Teacher of Mathematics
- Teaching Mathematics (middle and high school students)
 - Training talented students for national and international Mathematics competitions/Olympiads

EDUCATION

Institute for Advanced Studies, IMTLucca, Italy PhD in Computer Science and Engineering Thesis: Alternative Solutions to Traditional Approaches to Risk Analysis and Decision Making Using Fuzzy Logic	03.2008-03.2011
American University of Armenia, Yerevan, Armenia Master in Computer and Information Science Thesis: Network chess for non-standard rules Dean's List of Distinguished Students, American University of Armenia	05.2005-10.2007
Armenian State Pedagogical, Gyumri, Armenia Diploma in Mathematics (equivalent of MA) Thesis: The Flat Problem of Asymmetric Theory of Elasticity for Mixed Border Conditions Applied in Rectangular Surface	09.1995-08.2000

TRAININGS and SUMMER SCHOOLS

Training on Bayesian Belief Networks machine learning from Bayesia Lab, Paris France	09.2017
International Atomic Energy Agency (IAEA) training on Practical Methods on Self-Assessment of Safety culture, Rome, Italy	10.2011
The International OECD HRP/NEA Summer School on Human Reliability Analysis, Halden, Norway	08.2010
13-th PhD Summer School on Advanced Course on Artificial Intelligence (ACAI2009), Northern Ireland	08.2009

OTHER ACTIVITIES

Member of Local Organizing committee, ESREL 2015 conference, ETH Zurich Coordination between reviewers and session chairs Reviewer of the articles related to safety culture, human reliability analysis and fuzzy set theory sessions Helping in the organization of the conference proceedings book	03.2015- 09.2015
Reviewer Applied Soft Computing Reliability Engineering and Safety Systems IEEE's Transactions on Knowledge and Data Engineering	2010- currently

SCHOLARSHIPS and AWARDS

PostDoc Researcher grant from Belgoprocess, Belgium	2011
Full scholarship to learn Italian, European School of Languages, Lucca, Italy	2010
Full scholarship for PhD studies , Fondazione di Lucca, Italy	2008
Excellence scholar , Athgo International, US	2008
Merit Scholarship , American University of Armenia	2006-2008
Full Study Scholarship , State Pedagogical Institute, Armenia	1995-2000
Silver Medal graduate , Mathematics and Physics College 'Balaton', Armenia	1995
Chess competitions awards in Georgia and Armenia	

SKILLS and KNOWLEDGE

Software

MATLAB, AgenaRisk, Netica, Star UML, Rational UML, Microsoft Visio

Modelling techniques and theoretical knowledge

Cognitive Maps, Failure Mode Effects Analysis (FMEA), Hazard Operability Study (HAZOP), Event Trees, Fault Trees, UML, Business Process Management (BPM) , Multi-criteria decision making, Fuzzy Set Theory, Evidence Theory, Bayesian analysis, Layers of Protection analysis (LOPA), Expert judgment analysis, Qualitative Comparative Analysis

LANGUAGES and HOBBIES

Languages	Armenian	Mother tongue
	English	Fluent
	Russian	Fluent
	German	TELC B2 (currently involved in C1 class)
	French	DELFB2 (preparing for DALF C1 exam)
	Italian	B2 (certificate from Lucca European School of Languages)
Hobbies and interests	Cooking (Caucasian, Asian and Italian cuisine)	
	Board games (Shogi, Xiangqi and Chess)	
	Traveling, reading, biking	

REFERENCES

Prof. Giovanni Sansavini	ETH Zurich Leonhardstrasse 21, 8092 Zürich, Switzerland	sansavig@ethz.ch
Dr. Thomas Kocher	Swiss Re Mythenquai 50, 8002 Zürich, Switzerland	thomas_kocher@swissre.com
Dr. Vinh Dang	Paul Scherrer Institute 5232 Villigen PSI, Switzerland	vinh.dang@psi.ch
Dr. Catrinel Turcanu	Belgian Nuclear Research Centre SCK-CEN Boeretang 200, 2400 Mol, Belgium	cturcanu@sckcen.be
Prof. Beatrice Lazzerini	University of Pisa Via Diotisalvi 2, 56122 Pisa, Italy	b.lazzerini@iet.unipi.it