

Niko VUOKKO



PERSONAL DATA

PLACE AND DATE OF BIRTH: Piikkiö, Finland — 10 April 1984
PHONE: +358 50 3029215
E-MAIL: niko.vuokko@tkk.fi
MARITAL STATUS: Married with one child

EDUCATION

Ongoing PhD studies, AALTO UNIVERSITY
Since FEB 2007 Research topic: *Significance Testing of Complex Null Hypotheses in Data Mining*
Planned time of PhD degree completion: Summer 2011
Interests: Data mining, Machine learning, Computational problems

2003 – 2006 Master of Science (mathematics), UNIVERSITY OF TURKU
Total study credits: 431
GPA grade average: 4.9 (range 1–5)
Major subject: Mathematics (234 cr, GPA 5.0)
Minor subject: Information Technology (130 cr, GPA 4.9)
Other studies: Economics (38 cr, GPA 4.6), Physics (18 cr, GPA 5.0)
Thesis: *Kloosterman Sums and Spectral Theory* (GRADE Laudatur)

MARCH – AUG 2004 NCO of Information Technology, SIGNAL- AND ELECTROTECHNICAL SCHOOL, COMMUNICATIONS REGIMENT
Studies: Leader training, LAN and Telenetworks, Optical fiber and Microwave technology, SDH nodes, Telephone exchanges, TETRA-networks.

ACCOMPLISHMENTS AND AWARDS

International Mathematical Competition (IMO), representing Finland
GLASGOW 2002 Bronze Medal
TOKYO 2003 Honorary Mention
BREMEN 2009 Team Deputy Leader

Nordic Mathematical Competition, representing Finland
2001–2003 Participation

Baltic Way — Team Mathematical Competition, representing Finland
TARTO 2002 Participation

International Mathematical Competition for University Students (IMC)
BLAGOEVGRAD 2005 Third Prize Class
ODESSA 2006 Third Prize Class

Olympic training of the Finnish Mathematical Association
2000–2003 Participation

NCO of Information Technology Course and Leader Training
2004 Head of the class award

TEACHING EXPERIENCE

TEACHER in the Olympic training of the Finnish Mathematical Association since 2006.

PARTLY LECTURED AND ASSISTED COURSES: Algorithmic Methods in Data Mining, 2007–2009

ASSISTED COURSES: Linear Algebra, 2006, Analysis I, 2006.

BACHELOR'S THESIS ADVISORSHIPS: Mathematics (2006), Computer Science (2010)

WORK EXPERIENCE

- Current* Researcher, postgraduate student at AALTO UNIVERSITY
Since FEB 2007 *Significance Testing Research in Data Mining*
Research in data mining and significance testing, published 7 works. Received very good student feedback on teaching.
- AUG–NOV 2010 Consultant for SANDVIK MINING AND CONSTRUCTION
Inverse Kinematics Optimization
Development of significantly faster and more reliable inverse kinematics solutions
- JUN–SEP 2008 Research scholar at IBM ALMADEN RESEARCH CENTER, San Jose, USA
Data Mining in Social Networks
Two research projects on social networks, published 1 work.
- Since JULY 2007 Consultant for FINNISH GAME AND FISHERIES RESEARCH INSTITUTE,
KAINUU FISHERIES RESEARCH
Telemetry Data Processing and Analytics Software Development
Solo designer and developer of a full software solution for fishery research
- SEP – DEC 2006 Assistant at UNIVERSITY OF TURKU, DEPARTMENT OF MATHEMATICS
Course Assistant, Instruction of students
Assisted two mathematics courses with excellent student feedback
- MAY – AUG 2005 Research Assistant at UNIVERSITY OF TURKU, DEPARTMENT OF MATHEMATICS
Research in Applied Analysis
Developed novel estimation bounds for modulus functions

LANGUAGES

FINNISH: Mother tongue
ENGLISH: Excellent
SWEDISH: Fluent
GERMAN: Conversational
JAPANESE: Basics

IT SKILLS

Expert: C++, C#, Java, Matlab, Mathematica, OLE Automation, Linux systems
Intermediate: Ruby, SQL, Javascript, PHP, C, Bash, Qt, CMake, Visual Studio, Boost, Ajax
Basic: Perl, Git, SVN

REFERENCES

Professor Heikki Mannila, Vice President for Academic Affairs, Aalto University

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E-MAIL: heikki.mannila@aalto.fi

STRENGTHS AND CHARACTERISTICS

My most distinct characteristic is my endless passion to learn new things, no matter the subject. I like finding new challenges and problems and trying tenaciously to solve them. I like working with people who try their very best and show true will towards things. I hold in great value the years I spent in the Olympic training for mathematics. Those experiences gave much to me in learning new innovative ways to approach difficult problems.

INTERESTS AND ACTIVITIES

I have been working as a teacher in the Olympic training of the Finnish Mathematical Association since 2006. Spending time with my family is nowadays my main recreation, but I'd like to have more time to play the piano. I've previously been active in scouting and football.

LIST OF PUBLICATIONS

M. Ojala, **N. Vuokko**, A. Kallio, N. Haiminen, H. Mannila: *Randomization of Real-Valued Matrices for Assessing the Significance of Data Mining Results*, SDM '08: Proceedings of the 8th SIAM International Conference on Data Mining, pages 494–505, April 24–26, 2008, Atlanta, Georgia, USA.

M. Ojala, **N. Vuokko**, A. Kallio, N. Haiminen, H. Mannila: *Randomization Methods for Assessing Data Analysis Results on Real-Valued Matrices*, Statistical Analysis and Data Mining, Volume 2, Issue 4, pages 209–230, 2009.

S. Hanhijärvi, M. Ojala, **N. Vuokko**, N. Tatti, K. Puolamäki, H. Mannila: *Tell Me Something I Don't Know: Randomization Strategies for Iterative Data Mining*, KDD '09: Proceedings of the 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, pages 379–388, June 28 – July 1, 2009, Paris, France.

N. Vuokko, E. Terzi: *Reconstructing Randomized Social Networks*, SDM '10: Proceedings of the 10th SIAM International Conference on Data Mining, pages 49–59, April 29 – May 1, 2010, Columbus, Ohio, USA.

N. Vuokko: *Consecutive Ones Property and Spectral Ordering*, SDM '10: Proceedings of the 10th SIAM International Conference on Data Mining, pages 350–360, April 29 – May 1, 2010, Columbus, Ohio, USA.

N. Vuokko, P. Kaski: *Testing the Significance of Patterns in Data with Cluster Structure*, ICDM '10: Proceedings of the 10th IEEE International Conference on Data Mining, pages 1097–1102, December 13–17, 2010, Sydney, Australia.

N. Vuokko, P. Kaski: *Significance of Patterns in Time Series Collections*, SDM '11: Proceedings of the 11th SIAM International Conference on Data Mining, April 28–30, 2011, Phoenix, Arizona, USA. To appear.

MANUSCRIPTS SUBMITTED FOR PUBLICATION

A. Kallio, **N. Vuokko**, M. Ojala, N. Haiminen, H. Mannila: *Randomization Techniques for Assessing the Significance of Gene Periodicity*, Submitted to BMC Bioinformatics.