Tirronen (former Kuuluvainen), Maria Johanna Emilia

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Personal data
Citizenship: Finnish
Birth: 1983; Imatra, Finland
Current residence: Petäjävesi, Finland

Contact
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Research interests
Data analysis, mathematical modelling

Education

University of Jyväskylä,

Doctor of Philosophy **21.12.2015**

- Faculty of Information Technology,
  Department of Mathematical Information Technology
- Field: Scientific computing; computational mechanics
- Thesis: On stochastic modelling and reliability of systems with moving cracked material (*very good*)

Pedagogical studies for teachers **25.5.2011**

- Faculty of Education and Psychology, Department of Teacher Education
- Teacher (basic and subject studies) in mathematics and computer science
- Subject studies in computer science completed

Master of Science **17.3.2010**

- Faculty of Mathematics and Science,
  Department of Mathematics and Statistics
- Major: Mathematics (stochastics)
- Minor: Statistics (subject studies)
- Basics of economics (9 ECTS)
- Thesis: Option pricing and hedging for jump diffusions (*eximia cum laude approbatur*)

Bachelor of Science **28.1.2009**

- Faculty of Mathematics and Science,
  Department of Mathematics and Statistics
- Major: Mathematics
- Minors: Statistics (basic studies)
  Computer science (basic studies)
- Thesis: Uusiutumisprosessi

University of Oulu, studies in architecture (63 ECTS) **1.9.2002-6.2.2004**

Language proficiency
Finnish: Native
English: Good
Swedish, Russian, German: Out of practice

Programming proficiency
Python, Matlab, R, Mathematica: Experience with numerical programming
Java: Out of practice

Other software proficiency
Git, LaTeX, vector graphics (Inkscape)
SQL, HTML, CSS, Photoshop: Out of practice

Publications[1]

[1] A4. V. Tirronen, M. Tirronen. Exploring Performance Factors Analysis on Programming Course Log. *Frontiers in Education*, Uppsala, Sweden, 2020.

[2] A1. M. Tirronen. Reliability analysis of processes with moving cracked material. *Applied Mathematical Modelling*, 40:4986–4999, 2016. URL: http://dx.doi.org/10.1016/j.apm.2015.12.010

[3] G5. M. Tirronen. On stochastic modelling and reliability of systems with moving cracked material. PhD thesis, University of Jyväskylä, 2015. URL: http://urn.fi/URN:ISBN:978-951-39-6444-3.

[4] A1. M. Tirronen. Stochastic fracture analysis of systems with moving material. *Rakenteiden Mekaniikka*, 48(2):116–135, 2015.

[5] A1. M. Tirronen. On reliability of systems with moving material subjected to fracture and instability. *Probabilistic Engineering Mechanics*, 42:21–30, 2015.

[6] A1. M. Tirronen, N. Banichuk, J. Jeronen, T. Saksa, & T. Tuovinen. Stochastic analysis of the critical velocity of an axially moving cracked elastic plate. *Probabilistic Engineering Mechanics*, 37:16–23, 2014.

[7] A4. M. Tirronen, T. Tuovinen, J. Jeronen, & T. Saksa. Stochastic analysis of the critical stable velocity of a moving paper web in the presence of a crack. In S. J. I' Anson, editor, *Advances in Pulp and Paper Research, Cambridge 2013*, volume 1, pages 301–319. The Pulp & Paper Fundamental Research Society, 2013.

[8] A1. N. Banichuk, M. Kurki, P. Neittaanmäki, T. Saksa, M. Tirronen, & T. Tuovinen. Optimization and analysis of processes with moving materials subjected to fatigue fracture and instability. *Mechanics Based Design of Structures and Machines: An International Journal*, 41(2):146–167, 2013.

[9] A3. N. Banichuk, S. Ivonova, M. Kurki, T. Saksa, M. Tirronen, & T. Tuovinen. Safety analysis and optimization of travelling webs subjected to fracture and instability. In S. Repin, T. Tiihonen, and T. Tuovinen, editors, *Numerical methods for differential equations, optimization, and technological problems. Dedicated to Professor P. Neittaanmäki on his 60th Birthday*, volume 27 of *Computational Methods in Applied Sciences*, pages 379–392. Springer Netherlands, 2013.

[10] B2. T. Palonen, M. Kankaanranta, M. Tirronen, & J. Roth. Tieto- ja viestintätekniikan käyttöönotto suomalaiskouluissa: haasteita ja mahdollisuuksia. In M. Kankaanranta, & S. Vahtivuori-Hänninen, editors, *Opetusteknologia koulun arjessa II*, pages 77–98. University of Jyväskylä, Finnish Institute for Educational Research, 2011.

[11] B2. E. Liuha, K. Luhtavaara, & M. Tirronen. Derivaatan laskusääntöjä GeoGebran avulla. In M. Hähkiöniemi, editor, *GeoGebra-avusteinen tutkiva matematiikka opetusharjoittelussa*, pages 118–122. University of Jyväskylä, Department of Teacher Education, 2011.

Presentations

Stochastic fracture analysis of a moving paper web. *ECCOMAS Thematic Conference on Computational Multi Physics, Multi Scales and Multi Big Data in Transport Modeling, Simulation and Optimization*, Jyväskylä, Finland.

26.5.15

Stochastic analysis of the critical stable velocity of a moving paper web in the presence of a crack. *Advances in pulp and paper research*, Cambridge, UK.

10.9.13

Effect of gravity on stability of an axially moving band. *6th European Congress on Computational Methods in Applied Sciences and Engineering*, Wien, Austria.

10.9.12

Professional experience

Maternity leave 1.1.17-31.1.19

University of Jyväskylä,

Faculty of Mathematics and Science,
Department of Biological and Environmental Science,
The Kuparinen group

Postdoctoral researcher 1.2.19- (80 %)

Faculty of Information Technology,
Department of Mathematical Information Technology,

Postdoctoral researcher 1.3.-31.12.16 (75 %)
Doctoral student 18.11.11-31.12.15
Research assistant 18.7.-17.11.11

Finnish Institute for Educational Research,
PISA test scoring

Project assistant 4.7.-15.7.11 (5.5 hours)
9.5.-1.7.11 (80 %)

Agora Center,
The Innovative Teaching and Learning and Opetusteknologia koulun arjessa projects

Research assistant 1.6.-31.8.10
1.5.-31.5.10 (40 %)
19.4.-31.4.10 (30 %)
15.3.-31.3.10

Faculty of Mathematics and Science,
Department of Mathematics and Statistics,

Part-time mathematics teacher 17.9.-19.11.09
19.1-1.4.09
15.9.-17.11.08

Trainee in mathematics 27.7.-26.8.09
4.4.-3.7.09
21.5-20.7.07

Freelance,
High school mathematics tutor 1.12.10-30.2.11 (50 hours)

Several employers,
Various summer and part-time jobs 99-06

Grants received

COMAS 1.2.14-30.9.15
1.2.-30.6.13

KAUTE Foundation 5000 €, 1.11.13-31.1.14

Ellen and Artturi Nyyssönen Foundation 9300 €, 1.8.12-31.1.13

Teaching

TIES455 Techno-economic Analysis, 2 ECTS, *teaching material (introduction to population dynamics) author*
3.5.-13.5.16

TIEP175 Tietokoneavusteinen laskenta ja visualisointi, 1 ECTS, *co-teacher*
7.9.-22.10.16

TIES459 Multivariate regression, 4 ECTS, *teaching assistant*
23.5.-24.6.16

MATP170 Approbatur 3, 5 ECTS, *teaching assistant* and *teaching material author* 26.5.-29.6.09.

MATY020 Matematiikan peruskurssi, 5 ECTS, *teaching assistant* 19.1-1.4.09

MATY010 Matematiikan propedeuttinen kurssi, 5 ECTS, *teaching assistant* 15.9.-17.11.08 and 17.9.-19.11.09

[1] According to OKM.