Marko Doko

June 2023

Research Interests

Foundations of mathematics, application of assisted theorem provers in mathematics, programming languages and verification, formal methods in computer science, weak memory concurrency

Education & Work experience

2021– **Assistant Professor**, *Heriot-Watt University*, Edinburgh, UK

2013–2021 **PhD student**, *Max Planck Institute for Software Systems (MPI-SWS)*, Kaiserslautern, Germany, Thesis title: Program Logic for Weak Memory Concurrency

2006–2013 **Teaching assistant**, *Department of Mathematics, University of Zagreb*, Croatia
Responsible for the following courses: Programming in C, Data Structures and Algorithms, Software in Mathematics, Computer Networks, Databases, Software Engineering, Computability Theory, Set Theory. Enrolled in a doctoral program in mathematics.

2001–2006 **Dipl. Ing. (MS equivalent) in Mathematics (profile: Computer Science)**, *Department of Mathematics, University of Zagreb*, Croatia

Peer Reviewed Publications (Conference and Journal Papers)

POPL 2019 Azalea Raad, Marko Doko, Lovro Rožić, Ori Lahav, Viktor Vafeiadis
On library correctness under weak memory consistency

Rad HAZU Vol. 23, 2019 Vedran Čačić, Marko Doko, Marko Horvat
Rearranging absolutely convergent well-ordered series in Banach spaces

ESOP 2018 Kasper Svendsen, Jean Pichon-Pharabod, Marko Doko, Ori Lahav, Viktor Vafeiadis
A separation logic for a promising semantics

ESOP 2017 Marko Doko, Viktor Vafeiadis
Tackling Real-Life Relaxed Concurrency with FSL++

VMCAI 2016 Marko Doko, Viktor Vafeiadis
A Program Logic for C11 Memory Fences

Workshops, Contributed Talks, and Poster Presentations

Logic Colloqium 2023 Tin Adlešić, Vedran Čačić, Marko Doko
CoqNFU: formalizing New Foundations (with urelements) in Coq

POPL 2015 Marko Doko, Viktor Vafeiadis
FSL: A Logic for Reasoning about Memory Fences
(Student poster session 3rd prize winner)

FMCAD 2014 Marko Doko, Viktor Vafeiadis
Reasoning about Fences in C11 Relaxed Memory Model

REORDER 2014 Marko Doko
Reasoning about Fences in C11 Weak Memory Model

Sustavi dokazivanja 2012 Marko Doko
Computing Generalized Trace for the Closed Fragment of Interpretability Logic (in Croatian)

Logic Colloquium 2009 Vedran Čačić, Marko Doko, Marko Horvat, Domagoj Vrgoč
Changing the Order of Summation for Series beyond ω

Scientific Talks

2023 New Foundations with Urelements (a modern outlook on an old theory)
Ocean University of China, Qingdao

2019 On library correctness under weak memory consistency
New York University

2019 On library correctness under weak memory consistency
Yale University

2018 A Separation Logic for Promising Semantics
Yale University

2017 Verifying the ARC Algorithm
Department of Mathematics, University of Zagreb

2016 Verifying Atomic Reference Counter
Kent Concurrency Workshop, Canterbury

2016 How To Reason About Multithreading in the Weak Memory Context
IEEE Computer Croatia Chapter

2016 Weak Memory Models From a Logician's Perspective
Department of Mathematics, University of Zagreb

2016 FSL: A Program Logic for C11 Memory Fences
New York University

2016 FSL: A Program Logic for C11 Memory Fences
Yale University

2015 FSL: A Program Logic for C11 Memory Fences
Northern Concurrency Meeting, Newcastle

Service

Subreviewer VMCAI 2014, NETYS 2016, CPP 2017, ESOP 2017, FSTTCS 2017, CPP 2018, CAV 2018, CONCUR 2021, CSL 2022

Artifact evaluation committee CAV 2017

Organizing committee World Logic Day, Zagreb (2023, 2024)

Supervisory Roles

2017 Supervised an undergraduate research intern at MPI-SWS through the Research Internship in Science and Engineering (RISE) project of the German Academic Exchange Service (DAAD).

Teaching

As assistant professor at Heriot-Watt Univeristy

summer sem. 2023 Web Design and Databases

summer sem. 2022 Data Structures and Algorithms

At Ocean University of China (part of the colaboration between HWU and OUC)

summer sem. 2022 Software Development 2 *(Programming in Java)*

summer sem. 2023 Software Development 2 *(Programming in Java)*

As teaching assistant at the Department of Mathematics, University of Zagreb

winter sem. 2006	Set Theory
summer sem. 2007	Programming in C, Software in Mathematics
winter sem. 2007	Programming in C, Computer Networks, Set Theory
summer sem. 2008	Programming in C, Software Engineering, Computability Theory
winter sem. 2008	Programming in C, Computer Networks, Set Theory
summer sem. 2009	Programming in C, Software Engineering, Computability Theory
winter sem. 2009	Programming in C, Computer Networks, Set Theory
summer sem. 2010	Programming in C, Computability Theory
winter sem. 2010	Programming in C, Computer Networks, Set Theory
summer sem. 2011	Programming in C, Computability Theory, Databases
winter sem. 2011	Programming in C, Data Structures and Algorithms, Computer Networks, Set Theory
summer sem. 2012	Programming in C, Computability Theory, Databases
winter sem. 2012	Programming in C, Data Structures and Algorithms, Computer Networks, Set Theory
summer sem. 2013	Programming in C, Databases

Public Outreach

2017 Mathematical Modeling of Behaviors of Multi-core Processors
Presentation for high-schoolers in Makarska, Croatia