CONTACT

Addres
Kraków, Poland

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EDUCATION

2017
Ph.D. in Theoretical Computer Science
Jagiellonian University in Kraków

Thesis: Quantitative aspects and generation of random lambda and combinatory logic terms

SELECTED PUBLICATIONS

Tuning as convex optimisation: a polynomial tuner for multi-parametric combinatorial samplers
Combinatorics, Probability and Computing (2021)

Statistical Properties of Lambda Terms
Electronic Journal of Combinatorics (2019)

Normal order reduction grammars
Journal of Functional Programming (2017)

SELECTED SOFTWARE

Generic Boltzmann Brain

Framework for the automatic compilation of efficient Boltzmann samplers for user-defined algebraic data types. The prototype implementation is a Template Haskell library which gives users rigorous control over the distribution of outcome objects

Paganini (paganini-hs)

Lightweight python library and Haskell EDSL wrapper meant for the purpose of helping with the design of combinatorial samplers.

Maciej Bendkowski, Ph.D.

Haskell Developer

PROFILE

I am a theoretical computer scientist, mathematician, and (functional) programmer interested in solving concrete problems though abstract and rigorous methods. Currently, I'm a Haskell developer working with Standard Chartered.

EXPERIENCE

10/2023 - Present
HASKELL DEVELOPER — Standard Chartered (Core Strats)

02/2023 - 09/2023
SENIOR HASKELL DEVELOPER — Generation Lambda

I help build a Cardano-based financial market for cryptographic assets which leverages the idea of programmable swaps. I'm responsible for designing, implementing, and testing both on- and off-chain services.

Tech stack:
- Haskell
- Plutarch
- Cardano API
- Kafka

01/2022- 02/2023
HASKELL DEVELOPER AND TECH LEAD — MLabs Ltd.

I worked as a Haskell and Cardano consultant. I designed, implemented, and tested Cardano blockchain protocols and dApps. I was responsible for leading teams of Haskell developers, and client communication.

Tech stack:
- Haskell
- Plutus / Plutarch
- Purescript
- Cardano API

12/2020 - 01/2022
SENIOR SOFTWARE ENGINEER — Finteum Ltd.

I helped create a distributed global financial market for intraday liquidity management based on Corda DLT. I helped launch a successful trial of Finteum's prototype system which involved several large financial institutions.

Tech stack:
- Kotlin (Corda)
- Scala
- K8s

06/2020 - 11/2020
PRINCIPAL RESEARCHER (R+D LEAD) — Blockhunters

I was responsible for the design and implementation of a symbolic virtual machine for WebAssembly. As the R+D lead, I designed new features, such as symbolic memory allocation, and optimized the machine's use of the Z3 SMT solver.

Tech stack:
- Python
- C++
- Z3

10/2017 - 10/2020
ASSISTANT PROFESSOR — Jagiellonian University in Kraków

I was part of the Theoretical Computer Science Department. In my research, I focused on statistical properties of large random combinatorial structures, and effective algorithmic means of their sampling. I was especially interested in the practical application of my findings in the area of property-based software testing in Haskell.

Teaching:
- Programming languages: Haskell, Prolog, C++
- Computer Science: Computation theory, Databases
- Mathematics: Logic, Combinatorics

07/2012 - 02/2015
SOFTWARE DEVELOPER — IBM Poland

I was working on the Eclipse Orion open source project (http://www.eclipse.org/orion). I focused primarily on Git support as well as its cloud service integrations.