Rudy Matela

Computer Scientist

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Personal Information

Full name	Rudy Matela Braquehais		
Nationalities	Brazilian & Polish (EU)	Year of Birth	1987

Summary

I am an Assistant Professor at Jönköpings Tekniska Högskola (JTH), where I teach courses of the Computer Science and Engineering programme and do research on property-based testing. I have been doing computer programming for the past 25 years: first as a hobby and then professionally — with extensive experience in several programming languages.

Education

2014–2017	**PhD in Computer Science**, *University of York*, United Kingdom.
2009–2011	**Master of Computer Science**, *Universidade Estadual do Ceará*, Brazil.
2005–2009	**Bachelor of Computer Science**, *Universidade Estadual do Ceará*, Brazil.

Skills and approximate years of experience

Programming	Haskell (>10 years), C (>10 years), Bash (>10 years), Ruby (3 years), C#, JavaScript, Lisp, Java, Assembly, C++, Python
Markup/Other	LaTeX (>10 years), HTML/CSS (>10 years), Makefile (>10 years), SQL
OS	Linux System Administration (Ubuntu, Debian, Arch): dpkg, apt, pacman
SCM	Git (>10 years), Mercurial (>10 years), SVN (3 years)
CI/CD	(>10 years) including: GitHub actions, Travis, CircleCI, Jenkins, Custom
Soft Skills	Problem Solving, Teamwork, Writing, Critical Thinking, Metacognition
Fields of Interest	Functional Programming Languages, Property-based Testing, Data Structures, Programming, Program Synthesis, Algorithm Design, Computer Networking

Languages

English	Fluent (C2)	Polish	Intermediate (B1)
Portuguese	Native Language (C2)	Swedish	Basic (A2)

Summary of Recent Roles and Experience

2022–now **Assistant Professor**, *Tekniska Högskolan i Jönköping*, Sweden. ju.se
Teaching: Programming (course responsible); Functional Programming (c. responsible); Software Development; Data Structures and Algorithms.
Research: Property-based testing of AI and machine learning systems.

2022 **Software Engineer**, *Channable*, Netherlands. channable.com
Web backend development in Haskell.
- Technologies: Haskell, Cabal, Nix, Grafana, Hoff

2018–2021 **Computer Scientist**, *Self-employed*, Brazil.
Independent contractor providing software development services.
- Technologies: Haskell, Yesod, Snap, SQL, JavaScript and Bash;
- with **Stack Builders (USA)** from 2018 to 2020.

(Also) Independent research on functional programming:
- manipulation of dynamically typed expressions; matela.com.br/express.pdf
- program synthesis. github.com/rudymatela/conjure

2014–2017 **PhD Student**, *University of York*, United Kingdom. cs.york.ac.uk
Research on the field of property-based testing (in Haskell) under supervision of Colin Runciman. matela.com.br/thesis-rudy.pdf
During my PhD, I have worked on several occasions as a teaching assistant for a few courses.

2012–2013 **Project Manager (Software Development)**, *FFIT*, Brazil. ffit.com.br
Development of web and mobile applications in the field of health care.
- Technologies: Ruby on Rails, Android, Kannel SMS Gateway and C.
- Management of a small development team using agile methodologies (Scrum).
- Version control with Git and Mercurial; CI with Jenkins

2012 **Lecturer (part-time)**, *Faculdade Lourenço Filho*, Brazil. flf.edu.br
(fixed-term) Lecturer, course responsible and examinator of the Network Services and Application Protocols course (Computer Networks Technology programme).

2011–2012 **Software Developer**, *Atlântico Institute*, Brazil. atlantico.com.br
Development of a printer driver to interface with Windows Azure using C++
- Technologies: C++, C#, WDK, DDK, Windows Azure.

2009 **Lecturer (part-time)**, *Universidade Estadual do Ceará*, Brazil. www.uece.br
(fixed-term) Lecturer, course responsible and examinator for the Introduction to Informatics course.

2008–2010 **Software Developer and Project Manager**, *IEPRO*, Brazil. iepro.org.br
Implementation of network protocols in a programable switch platform.
- Technologies: C, Assembly (EZchip NP-3), SVN, Git, Linux
- Lead Programmer in 2008
- Project Manager from 2009 to 2010 using agile methodologies

Open Source Contributions and Published Software

2015–now LeanCheck: an enumerative property-based testing library for Haskell — it has been used by industry, education and research by a number of companies and institutions. github.com/rudymatela/leancheck

2021–now Conjure: a tool that synthesizes Haskell functions out of argument-result bindings github.com/rudymatela/conjure

2017–now Extrapolate: a library to generalize counter-examples of Haskell test properties github.com/rudymatela/extrapolate

2016–now Speculate: a tool to discover properties about Haskell functions github.com/rudymatela/speculate

2015–now FitSpec: a tool to refine test properties for Haskell programs github.com/rudymatela/fitspec

2019–now Express: a library to manipulate dynamically-typed expressions for Haskell github.com/rudymatela/express

2020–now Udge: an online judge for hosting programming problems and exercises github.com/rudymatela/udge

2023, 2024 Contributions to the Calibrated Explanations Python ML library: testing, CI and packaging. (JTH) github.com/Moffran/calibrated_explanations

2024 Contributions to the Online Conformal Prediciton (ML) Python package: testing, CI and packaging. (JTH) github.com/egonmedhatten/online-cp

2022 Contributions to the Hoff merge bot while at Channable. Hoff is currently in use by industry in mid-to-large software projects. github.com/channable/hoff

2017 Tankode: a programming action game github.com/rudymatela/tankode

2007–now Maintainer of several Arch Linux packages on the AUR aur.archlinux.org

2012–2015 evenmoreutils: a collection of command line tools implemented in C and Bash github.com/rudymatela/evenmoreutils

2014–2021 Haskell Cheat Sheet matela.com.br/haskell-cs.pdf

Bugfixes and improvements

2025 Compatibility fixes in pngcheck (C) github.com/pnggroup/pngcheck

2012–2013 Bug fixes and improvements in the Hgactivity plugin for Mercurial (Python) labs.freehackers.org/projects/hgactivity

2012 Bug fixes on the Kannel SMS Gateway (C) kannel.org

2011 Bug fix on the screen rotation support of DWM (C) dwm.suckless.org

2009 Commits in the Linux Kernel regarding documentation and code conventions