

# Nata Stulova

## contact **whoami**

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## links

web:// **stulova.me**

LinkedIn:// **nata-stulova**

## education

### PhD in Software, Systems and Computing **cum laude**

2014–2018

Technical University of Madrid (UPM)

### MSc in Artificial Intelligence

2012–2013

Technical University of Madrid (UPM)

### BSc in Systems Analysis

2008–2012

National Technical University of Ukraine "Kyiv Polytechnic Institute" (NTUU "KPI")

## development

Java, C++, Python, Prolog

♥ bash, git

GitLab, Phabricator

markdown,  $\text{\LaTeX}$

WordPress, Wix

## languages

Ukrainian **native**

English, Spanish **advanced**

German **intermediate**

French, Hebrew **beginner**

## awards

**Forbes Ukraine** 2023 list of

women leaders in

Ukrainian science

I am a software engineering researcher, working on applied empirical and formal software analysis projects in industry with 10 years of experience in academia before switching.

// Since the start of the full-scale russian invasion into Ukraine I spend a share of my time as a volunteer, organizing information campaigns and rallies #StandWithUkraine.

## experience

### Senior Research Scientist | MacPaw | 2023-current

remote / Kyiv, Ukraine

**empirical software engineering research on Apple app ecosystem** > I am working on several research projects in the areas of software engineering, analysis, distribution, and also exploring the human-computer interaction domain. Unless we publish a paper [12], details are under an NDA.

### Research Writer | MacPaw | 2022-2023

remote / Kyiv, Ukraine

**research projects audit** > Participated in the systematization of the company's internal research projects and worked on several iterations of what has become research.macpaw.com. Rest is NDA.

### Senior Researcher | University of Bern | 2020-2021

remote / Bern, Switzerland

**code and documentation analysis** > As a team leader, project manager, and engineer working with several distributed R&D teams (4-6 people each) on source comments quality analysis, I have:

- established a collaboration between four research institutions to conduct a systematic analysis of the comment quality research trends within the last 10 years [11].
- contributed to an empirical study [10] on Java and Python developer adherence to coding style guidelines when writing comments, guiding data analysis and visualization;
- contributed to the development of a comment clone detection tool that found 1300+ API documentation issues in 10 major Java libraries and systems [9].

**requirements and documentation engineering** > In a team of four researchers I have managed the work on tool support for direct in-IDE integration of the source code and non-code software artifacts.

- we published a report [8] on the design and implementation of functionality for low-code creation of Gherkin-style scenarios from the source code directly in an IDE, for use in BDD workflows;
- we published a further generalization of this work [7] implementing IDE extensions to create and manage code-linked mind maps, Kanban boards, user stories, and interactive tutorial docs;

### Scientist | Swiss Federal Institute of Technology in Lausanne (EPFL) | 2019-2020

Lausanne, Switzerland

**code and documentation analysis** > I have worked on natural language processing (NLP) use for augmenting software analyses, establishing and leading a collaboration between two research institutions on a project for static detection of code-comment inconsistencies during code change [6].

### Research Assistant, Software Engineering | IMDEA Software Institute | 2014-2018

Madrid, Spain

**static and dynamic code analysis** > I have worked on program specification languages design, and on tools and techniques for specification-based source code analysis and verification. Joining a team working on Ciao, a dynamic Prolog-based language, its formal specification language of assertions, and its static and dynamic verification frameworks, I have:

- formalized and developed a specification language extension for higher-order function calls [1];
- formalized and developed several optimizations for source-to-source translation of formal specifications into runnable checks to minimize the run-time overhead introduced [2-4].
- collaborated on developing a static cost analysis technique to infer bounds on the overhead that run-time checking introduces in programs [5]

## service other qualifications

### conference organization

**Lecturer | University of Bern | 2020-2021**

remote/ Bern, Switzerland

**teaching** > at BSc and MSc levels, in person and fully remote:

CICLOPS'17 chair and organizer

- developed from zero a series of practical algorithms and data structures lectures within the Software Skills Lab course (lecture slides and videos, practical assignments, exams)
- co-supervised MSc and BSc theses
- gave lectures on programming languages, software verification, and UI design

NLBSE'25 tool competition co-chair

### reviewing

## volunteering

journals: EMSE, JOSS, Fundamenta Informaticae

**Business analyst, Project manager, Web Developer | Ksi Prostir | 2020-2021**

remote/ Dnipro, Ukraine

**digital transformation** > developing a website for a Dnipro-based cultural space KsiProstir. I have worked on the initial requirements analysis, after which I had collaborated in the no-code web development and maintenance.

conferences: LOPSTR, ICLP

**Secretary, Web master, Event organizer | Ukrainer in Bern | 2022--current**

remote/ Bern, Switzerland

**public outreach** > (Co-)organizer of scheduled and spontaneous rallies, information campaigns, and collaborations between different Swiss-Ukrainian NGOs. Website maintenance, flyer design, SMM. But I don't repair printers there at least.

## publications

- [1] Assertion-based Debugging of Higher-Order (C)LP Programs  
*N. Stulova, J. F. Morales, M. V. Hermenegildo* [PPDP'14]
- [2] Practical Run-time Checking via Unobtrusive Property Caching  
*N. Stulova, J. F. Morales, M. V. Hermenegildo* [ICLP'15]
- [3] Some Trade-offs in Reducing the Overhead of Assertion Run-time Checks via Static Analysis  
*N. Stulova, J. F. Morales, M. V. Hermenegildo* [SCP volume 155]
- [4] Exploiting Term Hiding to Reduce Run-time Checking Overhead  
*N. Stulova, J. F. Morales, M. V. Hermenegildo* [PADL'18]
- [5] Static Performance Guarantees for Programs with Run-time Checks  
*M. Klemen, N. Stulova, P. López-García, J. F. Morales, M. V. Hermenegildo* [PPDP'18]
- [6] Towards Detecting Inconsistent Comments in Java Source Code Automatically  
*N. Stulova, A. Blasi, A. Gorla, O. Nierstrasz* [SCAM'20]
- [7] First-class Artifacts as Building Blocks for Live in-IDE Documentation  
*N. Patkar, A. Chiş, N. Stulova, O. Nierstrasz* [SANER'22]
- [8] Interactive Behavior-driven Development: a Low-code Perspective  
*N. Patkar, A. Chiş, N. Stulova, O. Nierstrasz* [LowCode'21]
- [9] RepliComment: Identifying Clones in Code Comments  
*A. Blasi, N. Stulova, A. Gorla, O. Nierstrasz* [JSS volume 182]
- [10] Do Comments follow Commenting Conventions? A Case Study in Java and Python  
*P. Rani, S. Abukar, N. Stulova, A. Bergel, O. Nierstrasz* [SCAM'21]
- [11] A Decade of Code Comment Quality Assessment: A Systematic Literature Review  
*P. Rani, A. Blasi, N. Stulova, S. Panichella, A. Gorla, O. Nierstrasz* [JSS volume 195]
- [12] Position Paper: Think Globally, React Locally — Bringing Real-Time Reference-Based Website Phishing Detection on macOS  
*I. Petrukha, N. Stulova, S. Kryvoblotskyi* [STAST'24]