Nata Stulova

contact

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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")

developement

Java, C++, Python, Prolog
♥ bash, git
GitLab, Phabricator
markdown, 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

whoami

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 *[12,13]*, 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

conference organization

CICLOPS'17 chair and organizer

NLBSE'25 tool competition co-chair

reviewing

journals: EMSE, JOSS, Fundamenta Informaticae

conferences: LOPSTR, ICLP

other qualifications

Lecturer | University of Bern | 2020-2021 remote/ Bern, Switzerland

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

- 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

volunteering

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.

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]

[13] State of the Application Sandboxing on macOS: A Differentiated Replication
I. Pastukhova, I. Synytsia, N. Stulova [Preprint]