

Nadim Kobeissi

CONTACT INFORMATION	25 Avenue de la Division Leclerc 92290 Châtenay-Malabry, France	<i>E-mail:</i> nadim@symbolic.software <i>WWW:</i> https://nadim.computer
PERSONAL INFORMATION	Date of birth: September 1990. French and Lebanese dual citizenship. Fluent in English, French and Arabic.	
RESEARCH INTERESTS	Applied cryptography, symbolic protocol modeling, formal verification, web security, verifiably secure protocol implementation, secure messaging.	
EDUCATION	Inria , Paris, France <i>Accredited by École Normale Supérieure, Paris</i> Ph.D. Computer Science, December 2018 <ul style="list-style-type: none">• Dissertation Topic: “<i>Formal Verification for Real-World Cryptographic Protocols and Implementations</i>”• Thesis Advisors: Karthikeyan Bhargavan, Bruno Blanchet Concordia University , Montréal, Canada B.A. Philosophy, May 2013 <ul style="list-style-type: none">• Courses in Computer Science and participation in open source software projects.	
ACADEMIC EXPERIENCE	New York University , Paris, France <i>Adjunct Professor</i> https://computerscience.paris	2018 — 2019
	Proceedings on Privacy Enhancing Technologies Symposium <i>Guest Reviewer</i>	2017 — 2021
	IEEE European Symposium on Security and Privacy <i>Organizing Committee Member</i>	2017 — 2018
	Conservatoire National des Arts et Métiers , Paris, France <i>Lecturer</i>	2015 — 2017
PROFESSIONAL EXPERIENCE	Capsule Social , https://capsule.social <i>Founder, Research Lead</i>	2021 — Present
	Led the development and launch of Blogchain, a decentralized writing and publishing platform with high quality content on Web3 with best-in-class user experience. Built on top of IPFS and NEAR protocol. Hired and led a team of 15+ full-time employees. Successfully led a multi-million-dollar financing round.	
	Symbolic Software , https://symbolic.software <i>Director</i>	2017 — Present
	Participated in over 250 software and cryptographic audits for password managers, VPNs, mail clients, browsers, medical applications and much more, mainly in the European region. Trained <i>ENS Paris</i> students in applied cryptography and software auditing techniques. Also acts as a software publisher.	
	Microsoft Research , Cambridge, United Kingdom <i>Research Intern</i>	2016
	Participated in the development of formal verification techniques for smart contracts and formally verified parsers for X.509 certificates in F [*] , both of which led to peer-reviewed academic publications.	

SOFTWARE
PROJECTS

Verifpal, <https://verifpal.com>

New software for verifying the security of cryptographic protocols. Building upon contemporary research in symbolic formal verification, Verifpal's main aim is to appeal more to real-world practitioners, students and engineers without sacrificing comprehensive formal verification features. Used by Google, Zoom, Bosch and others. Led to peer-reviewed academic publication.

Noise Explorer, <https://noiseexplorer.com>

Online engine for designing, reasoning about, formally verifying and implementing arbitrary Noise Handshake Patterns. Based on our formal treatment of the Noise Protocol Framework, Noise Explorer can validate any Noise Handshake Pattern and then translate it into a model ready for automated verification and also into a production-ready software implementation written in Go or in Rust. Led to peer-reviewed academic publication.

Dr. Kobushi's Labyrinthine Laboratory, <https://drkobushi.com>

Ambitious indie puzzle adventure video game project. Conceived, designed, programmed and directed game, which features over 100 levels, story, dialog, and innovative gameplay. Led a team of five people, including a pixel artist, musician and sound designer. Published on Steam and Nintendo Switch. Overwhelmingly positive press reviews. Only the third ever commercial video game to be written in the Go programming language.

Piccolo: Othello, <https://piccolo.click>

Othello software for macOS and iOS written in Rust and Swift. Featured in Apple's *What We're Playing*, *Games We Love*, and *Best Games Made in France*. #1 top overall game in the Japan Mac App Store from April to July 2021.

SELECTED
PUBLICATIONS

Verifpal: Cryptographic Protocol Analysis for the Real World (with G. Nicolas, M. Tiwari), 21st International Conference on Cryptology in India, 2020

EverParse: Verified Secure Zero-Copy Parsers for Authenticated Message Formats (with A. Delignat-Lavaud, C. Fournet, T. Ramananandro, N. Swamy, T. Chahed), 28th USENIX Security Symposium, 2019

Noise Explorer: Fully Automated Modeling and Verification for Arbitrary Noise Protocols (with G. Nicolas, K. Bhargavan), 4th IEEE European Symposium on Security and Privacy, 2019

Ledger Design Language: Designing and Deploying Formally Verified Public Ledgers (with N. Kulatova) in 3rd IEEE European Symposium on Security and Privacy – Workshop on Security Protocol Implementations, 2018

Verified Models and Reference Implementations for the TLS 1.3 Standard Candidate (with K. Bhargavan, B. Blanchet), 38th IEEE Symposium on Security and Privacy, 2017

Formal Modeling and Verification for Domain Validation and ACME (with K. Bhargavan, A. Delignat-Lavaud), Financial Cryptography and Data Security, 2017

Automated Verification for Secure Messaging Protocols and their Implementations: A Symbolic and Computational Approach (with K. Bhargavan, B. Blanchet), 2nd IEEE European Symposium on Security and Privacy, 2017

Formal Verification of Smart Contracts (with K. Bhargavan, A. Delignat-Lavaud, C. Fournet, A. Gollamudi, G. Gonthier, A. Rastogi, T. Sibut-Pinote, N. Swamy, S. Zanella-Bèguelin), 11th ACM SIGPLAN Workshop on Programming Languages and Analysis for Security, 2016

FlexTLS: A Tool for Testing TLS Implementations (with B. Beurdouche, A. Delignat-Lavaud, A. Pironti, K. Bhargavan), 9th USENIX Workshop on Offensive Technologies, 2015

INVITED TALKS	<p><i>The Broader Implications of Apple’s Content Scanning Push</i>, Swiss Cyber Storm, 2021</p> <p><i>Verifpal: Cryptographic Protocol Analysis for the Real World</i> (with G. Nicolas, M. Tiwari), 9th IACR Real World Cryptography Symposium, 2021</p> <p><i>Noise Explorer: Fully Automated Modeling and Verification for Arbitrary Noise Protocols</i>, 7th IACR Real World Cryptography Symposium, 2019</p> <p><i>Capsule: A Protocol for Secure Collaborative Document Editing</i>, École Polytechnique Fédérale de Lausanne, 2018</p> <p><i>Formal Verification for Cryptographic Systems in Web Applications</i>, OWASP Gothenburg, 2018</p> <p><i>Bringing Formal Verification to the Real Web: Three Years of Interconnected Work</i>, Formal Methods Meets JavaScript Workshop, Imperial College London, 2018</p>
CERTIFICATIONS	<p>Certified national expert in cryptography, French Ministry for Research and Innovation. Authorized to lead Research and Development projects for 2017 — 2026</p>
SELECTED HONORS	<p>Distinguished Paper Award, 38th IEEE Symposium on Security and Privacy, 2017</p> <p>Best Hackathon Project, Runner Up, Microsoft Research Cambridge, 2016</p> <p>Best Paper Award, 9th USENIX Workshop on Offensive Technologies, 2015</p> <p>Wall Street Journal Data Transparency Award for Outstanding Data Control Project, 2012</p>
PROGRAMMING LANGUAGES	<ul style="list-style-type: none"> • Strong: Go, JavaScript, TypeScript, Rust, Swift • Intermediate: OCaml, PHP, Python, Java • Beginner: C, C#, F#, Ruby, Bash
SOFT SKILLS	<p>Project management and team leadership, video editing, web development, strong personal organization and time management skills.</p>