

# Nadim Kobeissi

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CONTACT INFORMATION	25 Avenue de la Division Leclerc 92290 Châtenay-Malabry, France	<i>E-mail:</i> <a href="mailto:n@nadim.email">n@nadim.email</a> <i>WWW:</i> <a href="https://nadim.computer">https://nadim.computer</a>
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	<b>Inria</b> , Paris, France <i>Accredited by École Normale Supérieure, Paris</i> Ph.D. Computer Science, December 2018 <ul style="list-style-type: none"><li>• Dissertation Topic: “Formal Verification for Real-World Cryptographic Protocols and Implementations”</li><li>• Thesis Advisors: Karthikeyan Bhargavan, Bruno Blanchet</li></ul> <b>Concordia University</b> , Montréal, Canada B.A. Philosophy, May 2013 <ul style="list-style-type: none"><li>• Courses in Computer Science</li><li>• Participation in open source software projects</li></ul>	
ACADEMIC EXPERIENCE	<b>Network and Distributed System Security Symposium</b> <i>Program Committee</i> 2025 <b>Privacy Enhancing Technologies Symposium</b> <i>Program Committee, Editorial Board</i> 2024 <i>Guest Reviewer</i> 2017 – 2023 <b>International Conference on Cryptology and Information Security in Latin America</b> <i>Program Committee</i> 2023 <b>Conference for Failed Approaches and Insightful Losses in Cryptology</b> <i>Program Committee</i> 2023 <b>New York University</b> , Paris, France <i>Adjunct Professor</i> 2018 – 2019 <a href="https://nadimkobeissi.github.io/nyu-paris-cs/">https://nadimkobeissi.github.io/nyu-paris-cs/</a> <b>IEEE European Symposium on Security and Privacy</b> <i>Organizing Committee Member</i> 2017 – 2018 <b>Conservatoire National des Arts et Métiers</b> , Paris, France <i>Lecturer</i> 2015 – 2017	
PROFESSIONAL EXPERIENCE	<b>Cure53</b> , <a href="https://cure53.de">https://cure53.de</a> 2024 – Present <i>Senior Applied Cryptography Auditor</i> After a three-year career shift towards working in startups, I returned as a full time senior applied cryptography auditor at Cure53 working on auditing deeply critical real-world cryptographic systems, which I wish I could say more about if it weren't for NDAs.	

## SOFTWARE PROJECTS

### **Symbolic Software**, <https://symbolic.software>

*Director*

**2017 – Present**

Software publisher and boutique applied cryptography consultancy based in Paris. Has participated in over 250 software security audits and has published research software for applied cryptographers. Also publishes small indie video game projects.

### **Polygon Technologies**, <https://polygon.technology>

*Prover Developer*

**2023**

Contributing to the Polygon zero-knowledge EVM research and development. Implemented SHA256 support into the zkEVM prover C++ codebase. Largest single contributor to the Polygon Knowledge Layer, which was built and launched during my tenure.

### **Capsule Social**, <https://capsule.social>

*Founder, Research Lead*

**2021 – 2023**

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. Acquired by Nym Technologies SA.

### **Cure53**, <https://cure53.de>

*Applied Cryptography Auditor*

**2017 – 2021**

As part of an extended partnership between Cure53 and Symbolic Software, participated in over 150 audits for critical applied cryptography software components of companies, startups as well as the public sector around the world. Identified hundreds of security vulnerabilities including many critical vulnerabilities.

### **Microsoft Research**, Cambridge, United Kingdom

*Research Intern*

**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.

### **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.

### **Runes of Ardun**, <https://runesofardun.app>

Reimagining of the ancient Japanese strategy game Mini Shogi, transforming it into a strategic duel of wits and cunning on iPhone, iPad, Mac and Android. Includes original Shogi AI written from scratch in Rust, which plays at a competitive 2200 Elo rating. Featured in Apple's

*New Games We Love*. Top 10 Board Game in the Japan, France Switzerland and 20 other countries' App Stores in February 2024.

**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

*Emerging Threats to Private, Open Computing*, KU Leuven, 2024

*The Broader Implications of Apple's Content Scanning Push*, Swiss Cyber Storm, 2021

*Verifpal: Cryptographic Protocol Analysis for the Real World* (with G. Nicolas, M. Tiwari), 9th IACR Real World Cryptography Symposium, 2021

*Noise Explorer: Fully Automated Modeling and Verification for Arbitrary Noise Protocols*, 7th IACR Real World Cryptography Symposium, 2019

*Capsule: A Protocol for Secure Collaborative Document Editing*, École Polytechnique Fédérale de Lausanne, 2018

*Formal Verification for Cryptographic Systems in Web Applications*, OWASP Gothenburg, 2018

*Bringing Formal Verification to the Real Web: Three Years of Interconnected Work*, Formal Methods Meets JavaScript Workshop, Imperial College London, 2018

#### CERTIFICATIONS

Certified national expert in cryptography, French Ministry for Research and Innovation. Authorized to lead Research and Development projects for 2017 – 2026

SELECTED  
HONORS

Distinguished Paper Award, 38th IEEE Symposium on Security and Privacy, 2017  
Best Hackathon Project, Runner Up, Microsoft Research Cambridge, 2016  
Best Paper Award, 9th USENIX Workshop on Offensive Technologies, 2015  
Wall Street Journal Data Transparency Award for Outstanding Data Control Project, 2012

PROGRAMMING  
LANGUAGES

- Strong: Go, JavaScript, Kotlin, Rust, Swift, TypeScript
- Intermediate: C, C++, Java, OCaml, PHP, Python
- Beginner: Bash, C#, F#, Ruby