Viet-Sang NGUYEN

PhD Candidate in Cryptography

🏢 *18 Rue du Professeur Benoît Lauras*
42100, Saint-Étienne, France
📞 *(+33) 06 42 31 73 26*
✉ *nvietsang@gmail.com*
🖱 *https://nvietsang.github.io*
○ *nvietsang*
🎂 *04/01/1997*
🏳 *Vietnam*

Experience

2023–*	**PhD Candidate in Cryptography**, *University of Lyon*, Saint-Étienne, France.
2021–2022	**Cryptography Engineer**, *CryptoExperts*, Paris, France.
	White-Box Cryptography: Designed and developed white-box implementations of cryptographic primitives. Developed libraries for building arithmetic circuits.
	Obfuscation with Secure Element: Designed and developed an automated framework to obfuscate a C program and securely execute cryptographic primitives with secret keys (tamper resistance) in a lightweight secure element. Applied on NIST lightweight cryptography candidates and EdDSA.
2021 (6 months)	**Cryptography Engineer Intern**, *CryptoExperts*, Paris, France.
	Secure wallet app for cryptocurrency: Designed and developed a wallet capable of sending and receiving coins with considerations of security and privacy. Studied and applied White-box Cryptography and countermeasures against physical attacks on ECDSA.
2020 (3 months)	**Cryptography Research Intern**, *Research Institute XLIM*, University of Limoges, France.
	Pre-filtering in Pub/Sub systems: Studied and implemented an encrypted matching scheme. Embedded Cuckoo Filter into broker in order to pre-discard costly matching operation in case of being known definitely not to match (2x speedup compared to Bloom Filter)
2018 (3 months)	**Machine Learning Intern**, *Knorex*, HoChiMinh City, Vietnam.
	Language Detection: Evaluated and improved 60% in accuracy when detecting Malaysian and Indonesian. Added the ability to detect 5 new languages.
	Keys Mining: Evaluated and improved 10-20% in accuracy to extract keywords related to a certain topic in passages. Added the ability to extract keywords for 5 new languages.
2018–2019	**Research Student**, *ML4U Group*, HoChiMinh University of Technology, Vietnam.
	NLP Techniques: Collected new techniques through papers and applied to project of Question-Answering.
	Knowledge sharing: Weekly intensively reading seminars in Machine Learning coordinated by lecturer at HCMUT.

Education

2023–*	**PhD Candidate in Cryptography** .
	University of Lyon, France
2019–2021	**Master Cryptis in Information Security** , GPA: 15.01/20, Rank 2/20.
	University of Limoges (UNILIM), France
	Courses: Cryptology Advanced, Smart Cards and Secure Implementation, Security of ICT Usages, Cryptographic Mechanisms and Applications, Complexity and Computability
2015–2019	**Bachelor Engineer in Computer Science**, *Honors Program*, GPA: 8.35/10.
	HoChiMinh University of Technology (HCMUT), Vietnam
	Thesis (9.6/10): Built a Question-Answering model working on Vietnamese using Deep Learning (Exact Match: 61.0%, F1-score: 76.6%)

Projects

2021 (2 weeks)	Studied and implemented Power Analysis Attack and Correlation Analysis Attack on AES with a given set of traces; Differential Fault Analysis attack on AES

2020 (2 weeks)	Studied and implemented the attack Information Set Decoding and the protocol of key exchange BIKE-2 (Bit Flipping Algorithm in NIST PQC competition).
2020 (3 months)	Built a real-time Network Intrusion Detection System based on a Deep Learning model. Used Snort, Kafka, Zeek, Spark.
2020 (2 weeks)	CertifPlus: Built a server to securely distribute and verify electronic attestations using signatures and timestamp.

Technical Skills

Programming	C/C++, Python, Sagemath, Java, GPGPU, Android, SQL, Scalar, MATLAB, Shell Scripts
Other	Familiar with Unix-like OS, Git, Docker

Honors/Awards

2021,2022	3rd Prize in International Olympiad in Cryptography NSUCRYPTO with 2 best solutions.
2019	Scholarship of Anduin Transaction Vietnam in coding competition for HCMUT students.
2017–2018	Scholarship for Outstanding Students in Honors Program at HCMUT.
2015	Honourable Mention Prize in National Excellent Student Competition in Physics.

Languages

Vietnamese	Mother tongue
English	Full professional proficiency
French	Level B1

Social Activites/Services/Hobbies

Captain	Spring Voluntary Campaign: Provided orphaned children with food and handmade toys; collected and recycled garbage in district 10, HoChiMinh City (January, 2016)
Vice-Captain	Green Summer Voluntary Campaign: Planted trees at HCMUT; Fixed computers and provided new facilities for a primary school (June, 2016)
Hobbies	Drum, Football, Reading