Tetris-based Cryptography: a gateway to serious Crypto

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INVENTEURS DU MONDE NUMÉRIQUE

digitalcuisine

Crypto' 14, Rump Session

[1] ENS Paris, Université Paris VII, UCSD

Cryptris, a gateway to serious Crypto

Cryptris : A **scientific mediation** video Game mimicking Tetris, on the foundation and usage of asymmetric cryptography.

- Coordination, Médiation, Funding : **INRIA**
- Scenario, développement : **digitalcuisine**
- Sponsoring : **Cap Math**

It is **Open-Source**[2] and runs fully on HTML5 !

[2] https://github.com/inriamecsci/cryptris/

A Crypto Game[3]? But why ?

January 2013 :
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[3] From Dan, Tanja and Nadia http://toogl.es/#/view/HJB1mYEZPPA

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...and fails.[3]

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Go beyond the “IACR Copenhagen Resolution”, and act :

- Promote and Supervise the development of secure and easy to use crypto software
- Educate about cryptography : raise awareness, avoid misconceptions, fight the “**dark-art**” feeling, make it conceptually simple

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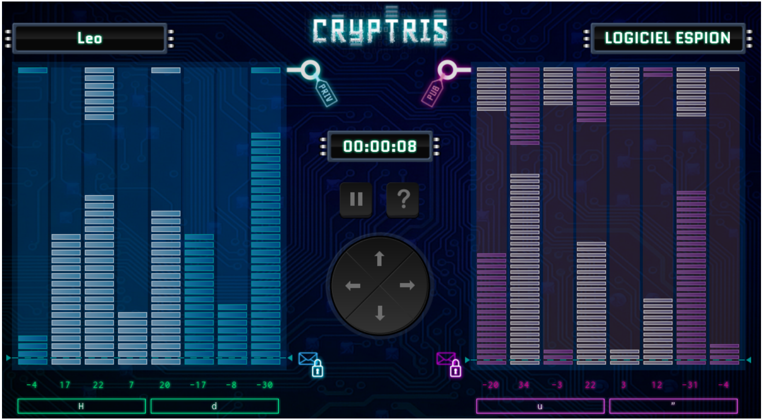
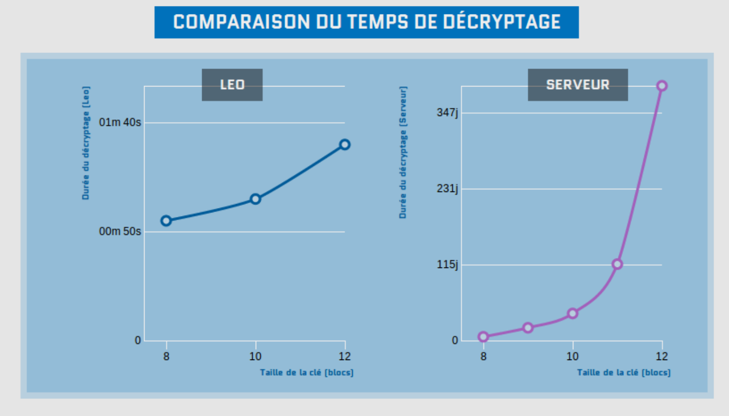
Playing against the Spy

On the left, the player (legitimate receiver) plays with the private key, making the game easy.



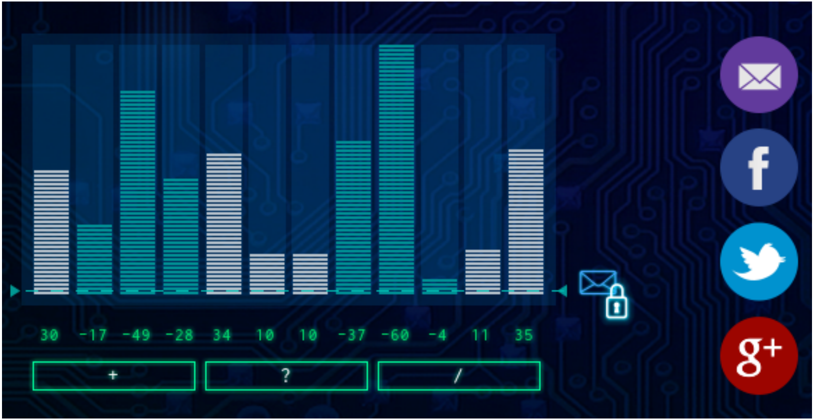
On the right, the adversary only has the public key : the game is much harder for him !

Exponential hardness



Soon it becomes impossible to decrypt for the adversary, but remains easy for the legitimate user. QEM !

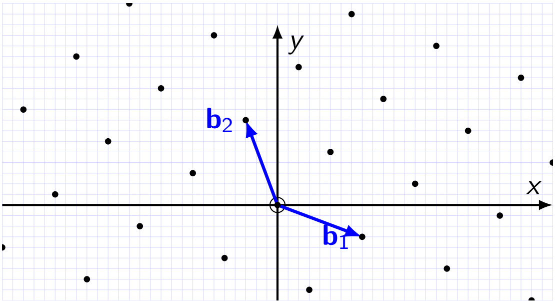
Share your Cryptopathy



The game is compatible with social networks :
challenge your contact with personalized “encrypted” messages.

Nah ! No prime numbers, can't be serious.

Its actually quite serious : Lattice based Cryptography.



It comes with 2 Popular Science articles[4] slowly switching from Tetris to serious math !

[4] published on CNRS's blog IMAGES DES MATHÉMATIQUES.

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Figure: Non exhaustive list of logos I'd love to include

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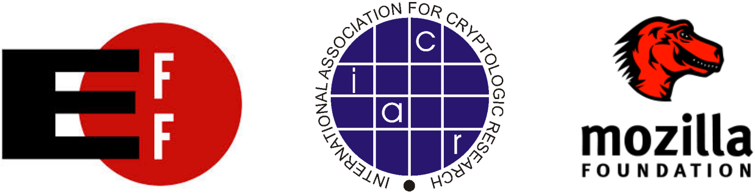
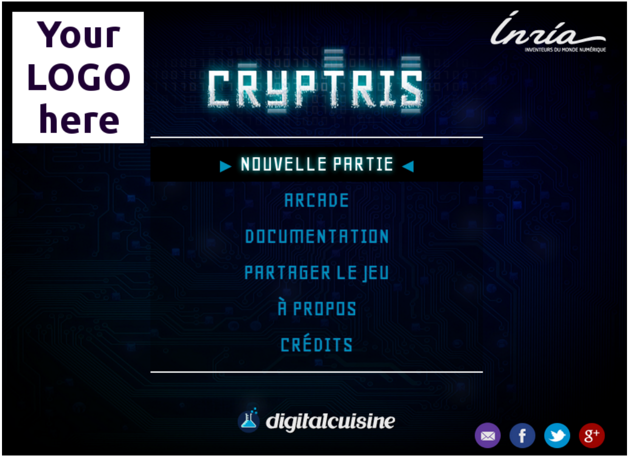


$\$2^{12} = o(\$2^{20})$

Be our sponsor !



And if you read French :

http://inriamecsci.github.io/cryptris/