

# CURRICULUM VITAE: TONY CHENEAU

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Address: 433 Westside Drive,  
20878, Gaithersburg, MD, USA,  
Website: <http://amnesiak.org/me>  
☎: (+1) 240 481 5685  
✉: [tony.cheneau@amnesiak.org](mailto:tony.cheneau@amnesiak.org)

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Nationality: French  
Birth: May 3, 1984

## EDUCATION

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- Ph.D in Computer Science**, TELECOM SudParis - France 2011  
Thesis: Improving security and performances of CGA & SEND and their new applications  
Advisor : Prof. Maryline Laurent
- Master's Degree in Computer Science**, University of Paris XII - France 2007  
Specialty: Information Technology Security (SSI)
- Bachelor's Degree in Computer Science**, University of Poitiers - France 2005  
Specialty: Networks, Communications and Control Engineering (RCA)

## COMPUTER SKILLS

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- ▷ **Operating Systems:** GNU/Linux, OpenBSD, FreeBSD, MS Windows
- ▷ **Programming:** C/C++, Python, Bash
- ▷ **Wireless Sensor Networks:** Contiki, Linux/6LoWPAN stack

## IMPLEMENTATION EXPERIENCES

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**NDprotector** 2009 – Present  
An Open Source implementation of CGA (RFC 3972) & SEND (RFC 3971) protocols. This implementation proves the feasibility of two of my IETF proposals: *draft-cheneau-csi-send-sig-agility* and *draft-cheneau-csi-ecc-sig-agility*. In addition, this work has been reported during the IETF 77 meeting (CSI Working Group).

## WORK EXPERIENCE

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**National Institute of Standards and Technology**, Guest Researcher February 2011 – Present  
Gaithersburg – United States of America  
Topic: Define a security framework for wireless Smart Grid communications

**TELECOM SudParis**, Ph.D Student October 2007 – December 2010  
Evry – France  
Topic: Improve and extend CGA (RFC 3972) and SEND (RFC 3971) protocols

**Orange Labs**, Research Intern March 2007 – August 2007  
Issy-les-Moulineaux – France  
Topic: Research security flaws in the CGA (RFC 3972) and SEND (RFC 3971) protocols

## JOURNALS

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1. T. Cheneau, A. Boudguiga, and M. Laurent. Significantly improved performances of the cryptographically generated addresses thanks to ECC and GPGPU. *Computers & Security*, 29(4):419 – 431, 2010.

## CONFERENCES

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1. T. Cheneau and J-M Combes. Une attaque par rejeu sur le protocole SEND. In *Sécurité des Architectures Réseaux et des Systèmes d'Information (SAR-SSI) 2008*, October 2008.
2. T. Cheneau, A. Boudguiga, and M. Laurent-Maknavicius. Amélioration des performances des adresses CGA et du protocole SEND: étude comparée de RSA et d'ECC/ECDSA. In *Sécurité des Architectures Réseaux et des Systèmes d'Information (SAR-SSI) 2009*, June 2009.
3. T. Cheneau and M. Laurent. Étude des solutions de proxy Neighbor Discovery sécurisées et proposition basée sur la Signature Agility. In *Sécurité des Architectures Réseaux et des Systèmes d'Information (SAR-SSI) 2010*, May 2010.
4. T. Cheneau and M. Laurent. Using send signature algorithm agility and multiple-key cga to secure proxy neighbor discovery and anycast addressing. In *6th Conference on Network Architectures and Information Systems Security (SAR-SSI 2011)*, pages 227–233. IEEE France, May 2011.
5. T. Cheneau, A. Sambra, and M. Laurent. A Trustful Authentication and Key Exchange Scheme (TAKES) for Ad Hoc Networks. In *5th International conference on Network and System Security (NSS)*, pages 249–253, September 2011.

## IETF CONTRIBUTIONS

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1. T. Cheneau, M. Laurent-Maknavicius, S. Shen, and M. Vanderveen. Support for Multiple Signature Algorithms in Cryptographically Generated Addresses (CGAs). Internet-Draft draft-cheneau-cga-pk-agility-00, Internet Engineering Task Force, June 2009. Work in progress.
2. T. Cheneau, M. Laurent, S. Shen, and M. Vanderveen. Signature Algorithm Agility in the Secure Neighbor Discovery (SEND) Protocol. Internet-Draft draft-cheneau-csi-send-sig-agility-02, Internet Engineering Task Force, June 2010. Work in progress.
3. T. Cheneau, M. Laurent, S. Shen, and M. Vanderveen. ECC public key and signature support in Cryptographically GeneratedAddresses (CGA) and in the Secure Neighbor Discovery (SEND). Internet-Draft draft-cheneau-csi-ecc-sig-agility-02, Internet Engineering Task Force, June 2010. Work in progress.

## RESEARCH REPORTS

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1. A. Boudguiga, T. Cheneau, and M. Laurent-Maknavicius. Usage and Performance of Cryptographically Generated Addresses, Research report TELECOM and Management SudParis, 08-014 LOR, October 2008.

## SUBMITTED CONTRIBUTIONS

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1. T. Cheneau and R. Mudumbai. MARTA: Memory and Routing Topology Aware Authentication and Key Management Protocol for Wireless Sensor Networks. *IEEE WoWMoM 2013* (under 1<sup>st</sup> review).

## HONORS & AWARDS

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- ▷ Best Student Paper Award SAR-SSI 2009 conference

## TEACHINGS

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### TELECOM SudParis

2008 – 2011

Lectures, including:

- ▷ Introduction to the Neighbor Discovery Protocol, CGA & SEND (2h)

Lab session, including:

- ▷ Virtual Private Network: IPsec, NAT, filtering (54h)
- ▷ Data Communication Network: DHCP, VLAN , packet capture analysis (27h)

Supervision of students, including:

- ▷ Supervising an MSc in Computer and Communication Networks internship (6 months)
- ▷ Supervising two groups of 3<sup>rd</sup> year engineers during their Research Project

## PROJECTS

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### Secure Smart Grid project

2011 – ongoing

The Secure Smart Grid project proposes a new architecture for secure communications between Smart Meters and a data collecting entity named Data Aggregation Point. The proposal relies on emerging wireless technologies for communications (IEEE 802.15.4, 6LoWPAN and RPL) and on already proven technologies for the security aspects (IEEE 802.1x and EAP). Scalability of the proposal has been confirmed through Discrete Event Simulation (OMNet++) and implementation is under way. This NIST funded project is being worked on within the Advanced Network Technologies Division (ANTD).

### MobiSEND project

2007 – 2010

The project aims to adapt and implement the SEND (RFC 3971) protocol in a Mobility Context (MIPv6, NEMO, ...), offering IPv6 address protections to Mobile Nodes. This project is sponsored by the French National Research Agency (ANR).

## CONFERENCE AND JOURNAL ARTICLE REVIEWS

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- ▷ *International Conference on Secure Networking and Applications (ICSNA 2013)*, TPC, 2013
- ▷ *IEEE Journal on Selected Areas in Communications: Smart Grid Communications Series (JSAC Smart Grid Series)*, 2012
- ▷ *IEEE Communications Magazine* journal, 2011
- ▷ *Smart Grid Communications (SmartGridComm)* conference, 2011
- ▷ *Software Telecommunications and Computer Networks (SOFTCOM)* conference, 2011
- ▷ *Electronics and Telecommunications Research Institute (ETRI)* journal, 2011
- ▷ *EURASIP Journal on Wireless Communications and Networking (JWCN)*, 2010
- ▷ *New Technologies, Mobility and Security (NTMS)* conference, 2010
- ▷ *Annals of telecommunications (ANTE)* journal, 2010
- ▷ *Mobile and Wireless Networks Security (MWNS)* workshop, 2008

## LANGUAGES

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- ▷ English: fluent
- ▷ French: native
- ▷ German: basic notions