

Antoon Purnal (*Toon*)

PHD RESEARCHER IN SECURITY. PIVOTS QUICKLY & DIVES DEEP.

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Education

PhD Candidate (FWO Fellow) • imec-COSIC, KU Leuven

MICROARCHITECTURAL SECURITY • SPECIALIZED CRYPTOGRAPHY

Oct. 2018 - PRESENT

Security Research with publications in top-tier (A*) venues.

Additional Commitments: Ombudsperson, Teaching Assistant, Thesis Student Mentor.

Master of Electrical Engineering • KU Leuven

EMBEDDED SYSTEMS • SUMMA CUM LAUDE (86%) • MSC THESIS PRIZE 🏆

Sept. 2016 - Jun. 2018

Thesis: *Protecting KECCAK against combined side-channel and fault attacks.*

Student Job: Teaching Assistant (EM Waves, Calculus III, Problem Solving).

Bachelor of Engineering Science • KU Leuven

ELECTRICAL ENGINEERING - COMPUTER SCIENCE • MAGNA CUM LAUDE (80%)

Sept. 2013 - Jun. 2016

Selected Publications

USENIX SEC '22 *Double Trouble: Combined Heterogeneous Attacks on Non-inclusive Cache Hierarchies*
(*To appear*) (Antoon Purnal, Furkan Turan and Ingrid Verbauwhede)

ACM CCS '21 *Prime+Scope: Overcoming the Observer Effect for High-Precision Cache Contention Attacks*
AR: 22% 📄 ⚡ 🎯 (Antoon Purnal, Furkan Turan and Ingrid Verbauwhede)

IEEE S&P '21 *Systematic Analysis of Randomization-based Protected Cache Architectures*
AR: 12% 📄 ⚡ 🎯 (Antoon Purnal, Lukas Giner, Daniel Gruss and Ingrid Verbauwhede)

ASIACRYPT '19 *Forkcipher: a New Primitive for Authenticated Encryption of Very Short Messages*
AR: 23% 📄 (Elena Andreeva, Virginie Lallemand, Antoon Purnal, Arnab Roy, Reza Reyhanitabar, Damian Vizár)

Experience

Exchange Researcher

NATIONAL CHIAO TUNG UNIVERSITY (NCTU), TAIWAN

Jul. 2017 - Aug. 2017

I designed a real-time, low-power cryptographic hardware implementation. Tape-out in TSMC 90nm.

Cyber Security Internship

SWEEPATIC

Oct. 2016 - Apr. 2017

I produced and taught a training session for a customer, in addition to attack surface research (OSINT).

Educational Volunteer, Teamleader

VDS VZW & DE SCHAVUIT (YOUTH WORK)

Jul. 2015 - Dec. 2019

During my years in youth work, I have lead and coached several generations of volunteers.

Skills

Programming Software: Python, C, ARM/x86/MIPS Assembly

Hardware: VHDL, Verilog

Enablers: LaTeX, Beamer, Git, Matlab

Languages Proficient: Dutch, English

Basic: French, German, Spanish

Miscellaneous Driving license (category B). Lead guitarist in local band and university big band.