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.