Adriaan **Peetermans**

Doctor of Engineering Science (PhD)

Profile

Electrical engineer with a PhD from KU Leuven (2024), supervised by Prof. Ingrid Verbauwhede. Specialized in hardware security, focusing on cryptographic primitives: TRNGs and PUFs. Completed three ASIC tapeouts, reinforcing expertise in digital design, which remains the primary area of interest.

Info & Contact

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Tessenderlo-Ham, Belgium
1995

Language

Dutch (Flemish) — Native

English — Fluent

French — Intermediate

Skill

- ASIC/FPGA Design & Verification
- Stochastic Modeling
- Programming (Python, Java, Git, LaTeX, Make)
- Patent & Paper Writing
- Frontend Development (JavaScript, HTML, CSS)
- Teaching & Public Speaking

Work Experience

KU Leuven, COSIC Research Group
Leuven
Oct. 2018 - Dec. 2024

PhD Researcher in Cryptographic Hardware (PhD Candidate)

- Conducted independent research on cryptographic hardware, focusing on improving randomness generation for embedded devices.
- Successfully completed the tapeout of three ASICs for the development and evaluation of True Random Number Generators (TRNGs).
- Published multiple peer-reviewed papers and presented research findings at several international conferences.

Education

KU Leuven
Leuven
Oct. 2018 - Oct. 2024

Doctor of Engineering Science (PhD)
Electrical Engineering
Dissertation Title: *Robust Randomness Generation on Embedded Devices*

KU Leuven
Leuven
Sept. 2016 - Jul. 2018

Master of Electrical Engineering
Master of Science (MSc)
Magna cum laude
Thesis Title: *Attacking and Securing Hardware Random Number Generators*

KU Leuven
Leuven
Sept. 2013 - Jun. 2016

Bachelor of Engineering
Bachelor of Science (BSc)
Magna cum laude
Major Subject: Electrical Engineering

Key Publications & Patents

- Adriaan Peetermans, and Ingrid Verbauwhede. "**TRNG Entropy Model in the Presence of Flicker FM Noise**". In: *IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES)*, 2024.
- Adriaan Peetermans, and Ingrid Verbauwhede. "**Characterization of Oscillator Phase Noise Arising From Multiple Sources for ASIC True Random Number Generation**". In: *IEEE Transactions on Circuits and Systems I (TCAS I)*, 2024.
- Adriaan Peetermans, and Ingrid Verbauwhede. "**An Energy and Area Efficient, All Digital Entropy Source Compatible with Modern Standards Based on Jitter Pipelining**". In: *IACR Transactions on Cryptographic Hardware and Embedded Systems (TCHES)*, 2022.
- Adriaan Peetermans, Vladimir Rožić, and Ingrid Verbauwhede. "**Random Number Generator**". U.S. Patent *10761809B1*, Mar. 12, 2020; South Korea Patent *102170985B1*, Oct. 29, 2020; Japan Patent *6960697B2*, Nov. 5, 2021.

Full list available at adriaanpeetermans.be/publications.

Awards & Fellowships

- **FWO Strategic Basic Research (SB) Fellowship**, Research Foundation - Flanders (FWO), topic: *Generic Methodology to Create True Randomness in Integrated Circuits*, Jan. 2019 - Dec. 2022.
- **imec Master's Thesis Award**, imec, award for completing an excellent master's thesis, Jul. 2018.
- **Best Student Award**, Faculty of Engineering Science, KU Leuven, Dec. 2014.