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Education

University of Cambridge

PhD in Computer Science

Cambridge, UK

2019 – 2024

- Thesis: “Eavesdropping risks of the DisplayPort video interface”, supervised by Dr Markus Kuhn
- Publications: D. Erdeljan, M. G. Kuhn, “Benefits of coherent demodulation for eavesdropping on HDMI emissions”, accepted at *EMC Europe 2024*.
- As part of the Hardware Security group, my research was on emissions security of DisplayPort, showing that it is possible to recover a displayed image from unintended electromagnetic radiation emitted by the video cable. DisplayPort was thought to be secure against such attacks, since older techniques (e.g. for HDMI) do not apply due to scrambling and its more complex signal structure.
- I designed, implemented, and evaluated signal processing algorithms in Julia, using a software-defined radio receiver. This showed that eavesdropping attacks on DisplayPort are possible in practice, and that contrary to existing recommendations, using this interface is not a sufficient defence.

University of Cambridge

BA+MEng in Computer Science

Cambridge, UK

2015 – 2019

- Graduated with distinction (MEng), achieving Class I in all years (BA).

Gimnazija “Jovan Jovanović Zmaj”

Grammar School “Jovan Jovanović Zmaj”

Novi Sad, Serbia

2011 – 2015

Work Experience

University of Cambridge

Supervisor

Cambridge, UK

Oct 2019 – present

- Small-group teaching of undergraduate students.
- Taught Security, Cryptography, Discrete Mathematics, Software and Security Engineering, Digital Signal Processing, and Operating Systems.
- Supervised two undergraduate dissertations: an investigation of an acoustic covert channel, and the implementation of CRYSTALS-KYBER on a microcontroller.
- Supervised an MEng thesis investigating the security of two models of smart locks.

Informatics competitions in Serbia

Committee member

Serbia

Oct 2015 – present

- Part of the committee responsible for organising all levels of high school competitions, from county-level to the national olympiad.
- Work includes proposing problems, creating statements, test data and solutions, monitoring for issues during the competition and resolving competitors' appeals, as well as maintaining internal tooling.

Cambridge Cyber Ltd.

Security Researcher

Cambridge, UK

Apr 2022

- Delivered a report on the security aspects of proposed standards for energy smart appliances, focusing in particular on design options for the public key infrastructure, the possibility of decentralisation, and the relevant tradeoffs.

Cambridge Spark

Contractor

Cambridge, UK

Mar–Nov 2022

- Created and supported a pre-interview assessment challenge used by a large algorithmic trading company.

- Responsible for all stages of the project: designed the challenge based on the client’s requirements, developed test data and an automated checker (supporting Python and Java), and provided advice for candidate selection and follow-up interview questions.

Cambridge Cyber Ltd.

Cambridge, UK

Security Researcher

Jul–Sep 2018

- Conducted a complete penetration test of a client’s device, from initial testing to writing a report. Discovered a critical vulnerability during testing, and provided both specific recommendations for a fix and general “best-practices” suggestions.
- Advised a client on current cybersecurity-related events and risks. Delivered a report on current events, and attended meetings with the client to provide further advice.

Arm Ltd.

Cambridge, UK

Software Engineer Intern

Jul–Sep 2017

- Worked on the Machine Readable Architecture Specification (executable pseudocode defining all instructions in Arm’s ISA).
- Implemented a TLB in the pseudocode interpreter to provide virtual address translation caching, increasing performance when testing the specification by 60%.
- Investigated failing tests to find behaviour not modeled by the specification and extended the pseudocode to provide support.

Microsoft Development Center Serbia

Belgrade, Serbia

Software Engineer Intern

Jul–Sep 2016

- SQL Big Data Team – worked on extending the U-SQL syntax and compiler to support inferring table schemas based on input data: went through the whole development process, from writing code (C#, some C++) to testing and integrating with the rest of the codebase.
- Organisation of BubbleCup 9 – setting problems, writing and verifying test data, and providing support during the competition.

Honours & Awards

Academic awards

- **Cambridge International & King’s College Scholarship** (August 2019)
- Trinity College **Senior Scholar**, elected for high performance in Parts 1B and II of the Computer Science Tripos (July 2017, 2018), and **Junior Scholar** for high performance in Part 1A (July 2016)
- **Trinity Eastern European Bursary** (April 2015)

Programming and Algorithmic Competitions

- **ACM International Collegiate Programming Contest** (team competition)
 - NWERC (Northwestern Europe Regional): 7th (2019), 14th (2018), 1st (2017), 8th (2016)
 - World Finals: 31st (2017)
- **International Olympiad in Informatics**: silver medal (2015, 2014), bronze medal (2013)
- **Balkan Olympiad in Informatics**: silver medal (2015, 2013), bronze medal (2014)

Cybersecurity Competitions

- **LakeCTF** (organised by EPFL): 1st place, team “cheriPi” (2022)
- **HECC!** (organised by University of Southampton): 2nd place, team “NP Compete” (2019)
- **Cambridge2Cambridge** (organised by Cambridge University and MIT): 2nd (2017), qualified for finals but could not attend (2016, 2018)
- **Country-to-Country CTF**: 5th (2020), 1st (2021, both in the individual and team round)
- **Inter-ACE Cyberchallenge**: 4th (2018, 2017; team category), 1st (2016; individual)
- I regularly participate in capture-the-flag competitions as a part of the *organizers* team, which has placed highly in many top-level competitions.