Joseph Hallett

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I am a PhD student at the University of Edinburgh expecting to submit in June. My research looks at using formal languages to model the informal policies and trust relationships that surround mobile devices. By doing this we were able to make precise comparisons between different app stores and mobile OSs, check the extent user's privacy preferences matched their behaviour, and find common areas of concern in BYOD policies. My background is in computer security; this has given me the opportunities to work in a variety of areas including policy languages, system engineering, embedded devices, program analysis and testing. Now I'm coming to the end of my PhD I am looking to move back into industry and start working on new problems and continue to explore and show other how cool software engineering is.

EDUCATION

2017 PhD at Edinburgh University School of Informatics

Looked at how authorization logic can be used to model the informal policies surrounding the mobile ecosystem, and describe precisely the differences. This led to full publications contrasting user's privacy preferences with their app installation habits (AppPAL for Android), and describing precisely the concerns and trust relationships in BYOD policies (Capturing Policies for BYOD).

Implemented *AppPAL* authorization logic in Java/Haskell.

Supervised by Prof. David Aspinall

2012 MEng Computer Science at Bristol University (2:1)

Specialised in cryptography and security.

Won the Infineon Prize for best final year project in Computer Architecture.

Dissertation on a steganographic method to create architecture independent bytecode.

EXPERIENCE

2014–2016 Teaching Assistant at Edinburgh University

Worked with Intel to create lab exercise using TLS securely and implementing certificate pinning in Android apps.

Developed new labs teaching students to perform and defend against classic stack overflows, return to libc, linker attacks, injection and web vulnerabilities.

Working for the *Computer Security* and *Secure Programming Courses*.

2012–2013 Security Engineer at MathEmbedded

Developed Linux and Android security specifications for conditional access vendors.

Worked on a dynamic analysis tool for assessing a system's conformance to the security specifications. Helped develop a kernel module and rootkit to hook into the system under test, and SQL database to implement the tests. Built test framework to test the tool worked as expected on multiple architectures and OSs.

Updated a set-top box system to a more recent kernel. Integrated patches to harden system; helped port their main application from a chroot into an LXC container.

2009–2012 Teaching Assistant at Bristol University

Procedural Programming and Principles of Programming courses

2008 Software Engineering intern at GE Oil and Gas

Worked on testing, bugfixing, and developing coding standards for C++.

2007 Summer placement as Software Engineer at Renishaw

PUBLICATIONS

(All publications authored by Joseph Hallett and David Aspinall)

- Capturing Policies for BYOD. IFIP-Sec (2017)
- *(Short Paper)* Common Concerns in BYOD Policies. IMPS Workshop (2017)
- *(Presentation)* Specifying BYOD Policies With Authorization Logic. iFM PhD Symposium (2016)
- AppPAL for Android. ESSoS (2016).
- *(Poster)* Using Authorization Logic to Capture User Policies in Mobile Ecosystems. SOUPS (2015)
- Towards an Authorization Framework for App Security Checking. ESSoS Doctoral Symposium (2014).

TECHNICAL SKILLS

• C and C++ • Java • Python • Ruby • Shellscript • Haskell • SQL • Datalog • R • Security • Linux Kernel • Android • Policy languages • Git • Radare2 • LaTeX