

# CLAUDIA CAULI

[Webpage](#) [eMail](#) [LinkedIn](#) [GitHub](#) [BitBucket](#)

INTERESTS **Critical** problems – Strong guarantees or proofs for critical problems – **Provable** methods – Provable security – Provable **authorization** – Automated detection of elevation of privilege vulnerabilities – Automated reasoning – **Rigorous** reasoning – Systematic testing of code and **infrastructure configuration** – Static analysis of code and infrastructure configuration – Lightweight verification of code and infrastructure configuration – Knowledge representation – **Ontologies** – Verification of artifacts produced with **LLMs** – Provable and rigorous reasoning applied to LLMs, GenAI, and ML artifacts.

## EMPLOYMENT

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10/2021 - current **Applied Scientist II** AWS, Automated Reasoning Group

*Applied Scientist based in London. Delivering provable detection of elevation of privilege vulnerabilities to customers in the Application Security organization (AWS AppSec). Leading intra-company engagement activities for Automated Reasoning in Europe. Mentoring new joiners and interns. Programming in Java and in verification languages that provide formal proofs: the [Dafny verification language](#) and the [Tamarin security protocols prover](#).*

## EDUCATION

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10/2016 - 10/2022 **CSE PhD** University of Leicester & University of Gothenburg,

**Pre-Deployment Description Logic-based Reasoning for Cloud Infrastructure Security**

ADVISOR: [Prof Nir Piterman](#)

9/2015 - 9/2016 **MSc in Advanced Computational Methods** University of Leicester, UK  
Awarded with DISTINCTION AVG MARK: 91/100

10/2013 - 7/2015 **BSc in Computer Science** Università di Cagliari, Sardinia, Italy  
*Three-Years Degree completed in Two Years* 110/110 CUM LAUDE

## INTERNSHIPS

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*Summer '20* **Formal Verification Engineer Intern @ Apple** *Cupertino, CA, USA*  
(cancelled) Verification of Apple's *System-on-Chip* (SoC) cryptographic primitives.

*Summer '19* **SDE Intern @ AWS** *Cupertino, CA, USA*.  
Working with [Dr Oksana Tkachuk](#) on logics and tools to reason about the security of cloud deployments. Application Security group (AppSec).

*Spring '18* **SDE Intern @ AWS** *Cupertino, CA, USA*  
Working with [Dr Oksana Tkachuk](#) on formal methods for Threat Modeling. Automated Reasoning Group (ARG).

## PUBLICATIONS & ONGOING WORK

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1. Cauli, C. and Piterman, N. *Equivalence of  $\mu^p$ -Calculus and  $p$ -Automata*. Implementation and Application of Automata: 22nd International Conference, CIAA 2017, Proceedings (2017)

[Paper](#) [One-Page Abstract](#) [Poster](#)

2. Cauli, C., Li, Meng, Piterman, N., and Tkachuk, Oksana. *Pre-Deployment Security Assessment for Cloud Services through Semantic Reasoning*. CAV 2021

[Paper](#) [5-min Talk @ CAV21](#) [25-min Talk @ CAV21](#) [5-min Talk @ KR20 DC](#)

3. Cauli, C., Ortiz, Magdalena, Piterman, N. *Closed- and Open-world Reasoning in DL-Lite for Cloud Infrastructure Security*. KR 2021

[Paper](#)

4. Cauli, C., Ortiz, M., Piterman, N. *Actions over Core-closed Knowledge Bases*. IJCAR 2022

[Paper](#)

## PATENTS

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1. Tkachuk, O., Cauli, C., Rungta, N., Bolignano P. V., Hortala J. R., Maher, S. *Automatically generating a machine-readable threat model using a template associated with an application or service*. US Patent 11,128,653. Assignee: Amazon Technologies Inc

[Patent](#)

## PRIZES AND AWARDS

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Best Speaker – 1 <sup>st</sup> Prize	<i>London Hopper Colloquium 2017</i>	<a href="#">Abstract</a>	<a href="#">Slides</a>
Best Poster Award – 3 <sup>rd</sup> Prize	<i>ACM-W UK-Inspire 2017</i>		
Researcher Development Fund Award 2017	<i>Graduate School, UoL</i>		
O-Sys Best Student Prize 2016	<i>Dept. of Informatics, UoL</i>		
Best Theoretical Project Prize 2016	<i>Dept. of Informatics, UoL</i>		

## PARTICIPATION TO EVENTS

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<i>Speaker</i>	ACM-W UK Inspire 2017	<i>University of Hertfordshire, UK, 12 May 2017</i>
<i>Speaker</i>	London Hopper Colloquium 2017	<i>BCS Headquarters London, UK, 25 May 2017</i>
<i>Speaker</i>	CIAA 2017	<i>Université Paris-Est Marne-la-Vallée, Paris, 27–30 June 2017</i>
Marktoberdorf Summer School		<i>Marktoberdorf, Germany, 2–11 August 2017</i>
ACM womENcourage 2017		<i>Universitat Politècnica de Catalunya, Barcelona, 6–8 Sept. 2017</i>
Highlights of Logics, Games, and Automata		<i>Queen Mary University, London, 12–15 Sept. 2017</i>
<i>Speaker</i>	ICCSW'17	<i>Imperial College London, 26–27 Sept. 2017</i>
2 <sup>nd</sup> Winter School in Formal Verification		<i>Jerusalem, 17–21 December 2017</i>
FLoC 2018 & CAV2018		<i>University of Oxford, Oxford, 12–16 July 2018</i>
<i>Invited Speaker</i>	London Hopper Colloquium 2018	<i>BCS HQ London, UK, October 2018</i>
Facebook TaV Symposium 2019		<i>Facebook HQ, London, November 2019</i>
<i>Speaker</i>	KR 2020 Doctoral Consortium	<i>Virtual, September 2020</i>
<i>Speaker</i>	FMCAD 2020 Doctoral Consortium	<i>Virtual, October 2020</i>
<i>Speaker</i>	AWS	<i>Virtual, February 2021</i>
<i>Speaker</i>	CAV 2021	<i>Virtual, July 2021</i>
<i>Speaker</i>	DL 2021	<i>Virtual, September 2021</i>
<i>Speaker</i>	KR 2021	<i>Virtual, November 2021</i>
<i>Speaker</i>	IJCAR 2022 (FLoC)	<i>Haifa, August 2022</i>
<i>Attendee</i>	Dagstuhl Seminar on Resilient Software Configuration and Infrastructure Code Analysis	