PhD in Information Technology and Electrical Engineering

Università degli Studi di Napoli Federico II

PhD Student: Antonio Ken Iannillo

XXX Cycle

Training and Research Activities Report – Third Year

Tutor: Domenico Cotroneo

1. Information

This report is on the training and research activities of Antonio Ken Iannillo during his third year of the PhD Course "Information Technologies and Electrical Engineering", XXX cycle, at University of Naples Federico II.

Antonio works within the DIETI Dependable Systems and Software Engineering Research Team (DeSSERT), former known as MobiLab, and he also co-operates with Critiware s.r.l..

2. Study and Training Activities

Antonio Ken Iannillo attended the following classes while its period of study in Northeastern University (Boston, USA) in order to enforce his research activities:

- Graduated program:
    - "Security analytics: Applications of machine learning in cybersecurity", by prof. Alina Oprea (link);
    - "Distributed Systems", by prof. Cristina Nita-Rotaru (link);

3. Research Activities

During the first period of the third year, Antonio Ken Iannillo was in North Eastern University, tutored by prof. Cristina Rita-Notaru, since September 2016. He decided to shift its research focus from bug analysis to a gray-box fuzzing approach for Android, to better bring together the reliability and security research interests. The design and implementation of the fuzzer, namely Chizpurfle, took the rest of the period in the US.

Once back in Naples (April 2017), Antonio started the experimental evaluation of Chizpurfle in the DESSERT (DEpendable System and Software Engineering Team, formerly known as MobiLab group) lab, focusing on the vendor service customizations of the Android OS. The results allow him to prepare and submit a research paper for ISSRE 2017. Meanwhile, he started the put in writing of the PhD thesis and focused completely on it till the end of the PhD year.

At the end of his third year (22-27 October 2017), Antonio Ken Iannillo participates to the 28th IEEE International Symposium on Software Reliability Engineering (ISSRE 2018) in Toulouse, France, where he published and presented a conference paper in the main research track. The conference paper is entitled "

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Chizpurfle: A Gray-Box Android Fuzzer for Vendor Service Customizations" and won the best research paper award.

4. Products

- "**Chizpurfle: A Gray-Box Android Fuzzer for Vendor Service Customizations**" – Iannillo A.K.; Natella R.; Cotroneo D.; Nita-Rotaru C.

  BEST RESEARCH PAPER AWARD

  Published in: *Software Reliability Engineering (ISSRE), 2017 IEEE International Symposium on*

  Date of Conference: 22-27 October 17

Total	Research	Seminars	Modules	Bimonthly Period		
60	35	5	20	**Estimated**		
10.5	10	0.5	0	nov-dec 2014	1	Credits year 1
11.7	8	0.7	3	jan-feb 2015	2	
10	6	1	3	mar-apr 2015	3	
24	6	3	15	may-jun 2015	4	
10	10	0	0	jul-aug 2015	5	
8	8	0	0	sep-oct 2015	6	
74.2	48	5.2	21	**Summary**		
60	45	5	10	**Estimated**		
8	7	1	0	nov-dec 2015	1	Credits year 2
27	7	8	12	jan-feb 2016	2	
7	7	0	0	mar-apr 2016	3	
17	7	7	3	may-jun 2016	4	
7	7	0	0	jul-aug 2016	5	
9	9	0	0	sep-oct 2016	6	
75.1	44	16.1	15	**Summary**		
60	60	0	0	**Estimated**		
10	10	0	0	nov-dec 2016	1	Credits year 3
10	10	0	0	jan-feb 2017	2	
10	10	0	0	mar-apr 2017	3	
10	10	0	0	may-jun 2017	4	
10	10	0	0	jul-aug 2017	5	
10	10	0	0	sep-oct 2017	6	
60	60	0	0	**Summary**		
209	152	21.3	36	**Total**		

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