Tamer Abdelaziz, Ph.D.

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Research Interests

Blockchain and smart contract security, anomaly detection, vulnerability detection using deep learning and large language models techniques, biometric security, software and system security, static and dynamic analysis techniques.

Employment History

Nov 2024 – Now **Postdoctoral Associate.** SANAD Lab @ New York University.

Mar 2024 – Oct 2024 **Lecturer.** Computer Science Dept., Helwan University.

Aug 2022 – Feb 2024 **Research Assistant.** PLSE Lab @ National University of Singapore.

Aug 2018 – May 2023 **PhD Candidate.** SoC, National University of Singapore.

April 2014 – Jul 2018 **Assistant Lecturer.** Computer Science Dept., Helwan University.

Education

2018 – 2023 **Ph.D. Computer Science, National University of Singapore**, Singapore.
Thesis title: *Towards Secure Smart Contracts: A Deep Learning Approach for Detecting Security Threats [1].*
Advisors: *Dr. Siau-Cheng Khoo and Dr. Aquinas Adam Hobor.*

2016 – 2018 **M.Sc. Computer Science, Helwan University**, Cairo, Egypt.
GPA: 3.56 / 4.0
Thesis title: *Enhancing Design of Extensibility in Software Applications Using Interactive Design Pattern Recommendation.*
Advisors: *Dr. Mostafa-Sami M. Mostafa and Dr. Aya Sedky Adly.*

2017 **Short-term exchange study and research, Masaryk University**, Czech Republic.
GPA: 1.0 / 1.0
Fields: Multidisciplinary studies at Faculty of Informatics.
Ranks among the best 9 percent of students as regards the reached average.
Advisor: *Dr. Bruno Rossi.*

2009 – 2013 **B.Sc. Computer Science, Helwan University**, Cairo, Egypt.
GPA: 3.69 / 4.0
Thesis title: *Bio-metric Security System Using Iris Recognition.*
Advisors: *Dr. Aliaa Youssif and Dr. Wessam El-Behaidy.*

Teaching Experience

- Between April 2014 and July 2018 (4.3 years), I served as a computer science assistant lecturer, delivering a diverse curriculum encompassing a spectrum of foundational and advanced topics. This included courses in:
  - Programming languages: C, C++, Java, Python.
  - Software development principles: Object-oriented programming, design patterns, data structures, compilers, software engineering, automation testing.
  - Machine learning techniques: Supervised, unsupervised, and semi-supervised learning classifiers, neural networks, LLMs.

Research Publications

Journal Articles

1. T. Abdelaziz, "Towards secure smart contracts: A deep learning approach for detecting security threats," *Ph.D Thesis, ScholarBank@NUS Repository, National University of Singapore*, 2023. URL: https://scholarbank.nus.edu.sg/handle/10635/247301.
2. T. Abdelaziz, A. Sedky Adly, B. Rossi, and M.-S. M Mostafa, "Identification and assessment of software design pattern violations," *Informatics Bulletin*, vol. 1, no. 2, pp. 6–13, 2019. URL: https://fcihib.journals.ekb.eg/article_107517_62d89752f7d871844b0e5dd1601da4f5.pdf.

Conference Proceedings

1. T. Abdelaziz and A. Hobor, "Schooling to exploit foolish contracts," in *2023 Fifth International Conference on Blockchain Computing and Applications (BCCA)*, 2023, pp. 388–395. DOI: 10.1109/BCCA58897.2023.10338924.
2. T. Abdelaziz and A. Hobor, "Smart learning to find dumb contracts," in *32nd USENIX Security Symposium (USENIX Security 23)*, Anaheim, CA: USENIX Association, Aug. 2023, pp. 1775–1792, ISBN: 978-1-939133-37-3. URL: https://www.usenix.org/conference/usenixsecurity23/presentation/abdelaziz.
3. T. Abdelaziz and A. Hobor, "Smart learning to find dumb contracts (extended version)," in *arXiv.org*, 2023. URL: https://arxiv.org/abs/2304.10726.
4. T. Abdelaziz and A. Hobor, "Usenix'23 artifact appendix: Smart learning to find dumb contracts," in *32nd USENIX Security Symposium (USENIX Security 23)*, Anaheim, CA: USENIX Association, Aug. 2023, ISBN: 978-1-939133-37-3. URL: https://www.usenix.org/system/files/usenixsecurity23-appendix-abdelaziz.pdf.

Skills

Languages	English fluent (reading, writing, speaking); Arabic native.
Security Analysis	Machine Learning, Deep Learning, Symbolic execution, Taint analysis.
Coding	Python, C/C++, Assembly, Java, LaTeX.

Skills (continued)

Databases	MySQL, sqLite, Oracle.
Web Dev	HTML, CSS, JavaScript, PHP.
Misc.	Academic research, teaching, training, consultation, and publishing.

Miscellaneous Experience

Honors and Awards

2018 **Singapore International Graduate Award (SINGA) Scholarship**. Awarded by National University of Singapore.

2017 **Erasmus+ programme Scholarship**. Awarded by Masaryk University.

2016 **Top Graduate Student Award**. Awarded by Helwan University.

2013 **Top Undergraduate Student Award**. Awarded by Helwan University.

References

Dr. Karim Ali — *Associate Professor @ Computer Science Dept., New York University.*
Email: karim.ali@nyu.edu

Dr. Aquinas Hobor — *Associate Professor @ Computer Science Dept., University College London.*
Email: a.hobor@ucl.ac.uk

Dr. Siau-Cheng Khoo — *Associate Professor @ Computer Science Dept., National University of Singapore.*
Email: khoosc@nus.edu.sg

Dr. Mostafa Sami — *Professor @ Computer Science Dept., Helwan University.*
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