Everton de Matos, PhD

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Experience

- **Technology Innovation Institute** — Abu Dhabi, United Arab Emirates
  Senior Security Research Engineer — *Aug 2020 - Current*
  - **Research and Development**:
    - Research in Embedded Systems security.
    - Implementation and deployment of virtualization solutions using seL4 microkernel and hypervisor platform on ARM architecture.
    - Bring-ups, OS support, feature set support, device virtualization, kernel modules.
    - Proof-of-concept development.
    - Written new project proposals in partnership with Universities.
    - Written scientific papers and technical reports.
    - Organization and presentation of research outcomes to higher management and external broader audience.
- **ATITUS** — Passo Fundo, Brazil
  Adjunct Professor — *Feb 2018 - Aug 2020*
  - **Teaching and Research**:
    - Computer Science undergraduate program Professor.
    - Advisor in research programs.
- **University of Southern California** — Los Angeles, CA
  Visiting Researcher — *Aug 2018 - May 2019*
  - **Research**:
    - Research in the Internet of Things area, blockchain, IoT marketplaces, and context-drive decisions.
    - Written scientific papers.
    - Holder of a Doctoral Dissertation Research Award (DDRA) grant by the Fulbright Brazil Commission.
- **Pontifical Catholic University of Rio Grande do Sul** — Porto Alegre, Brazil
  Researcher — *Mar 2014 - Mar 2020*
  - **Research**:
    - Research in Embedded Systems and ubiquitous computing.
    - Research in Context Sharing that is an essential requirement to have a common context information definition for heterogeneous IoT entities.
    - Development of a Context Sharing framework for IoT environments.
    - Design, development, and validation of a system to address the research challenge regarding context-awareness in IoT.
    - Written scientific papers.

Education

- **Pontifical Catholic University of Rio Grande do Sul** — Porto Alegre, Brazil
  PhD in Computer Science — *Mar 2016 - Mar 2020*
  Doctorate's dissertation: "Edge-centric context sharing architecture for the internet of things: context interoperability and context-aware security"
- **Pontifical Catholic University of Rio Grande do Sul** — Porto Alegre, Brazil
  MSc in Computer Science — *Mar 2014 - Mar 2016*
  Master's thesis: "Context-aware information services provision for IoT environments".
- **University of Passo Fundo** — Passo Fundo, Brazil
  BSc in Computer Science — *Feb 2010 - Jan 2014*
  Final project: "Development of a low-cost prototype to measure body balance".

Skills Summary

- **Languages**: C, C++, Unix scripting, Python, Assembly
- **Tools**: seL4, KVM, Docker, Linux, U-Boot, GIT, JIRA, Confluence

Publications

- **Journals**:
  - Matos, E.D. and Ahvenjärvi, M., 2022. seL4 Microkernel for virtualization use-cases: Potential directions towards a standard VMM. Electronics, 11(24), p.4201. https://doi.org/10.3390/electronics11244201
  - Tiburski, R.T., Moratelli, C.R., Johann, S.F., de Matos, E. and Hessel, F., 2021. A lightweight virtualization model to enable edge computing in deeply embedded systems. Software: Practice and Experience, 51(9), pp.1964-1981. https://doi.org/10.1002/spe.2968
  - de Matos, E., Tiburski, R.T., Moratelli, C.R., Johann Filho, S., Amaral, L.A., Ramachandran, G., Krishnamachari, B. and Hessel, F., 2020. Context information sharing for the Internet of Things: A survey. Computer Networks, 166, p.106988. https://doi.org/10.1016/j.comnet.2019.106988
  - Tiburski, R.T., Moratelli, C.R., Johann, S.F., Neves, M.V., de Matos, E., Amaral, L.A. and Hessel, F., 2019. Lightweight security architecture based on embedded virtualization and trust mechanisms for IoT edge devices. IEEE Communications Magazine, 57(2), pp.67-73. https://doi.org/10.1109/MCOM.2018.1701047
  - Tiburski, R.T., Amaral, L.A., De Matos, E., De Azevedo, D.F. and Hessel, F., 2016. The role of lightweight approaches towards the standardization of a security architecture for IoT middleware systems. IEEE Communications Magazine, 54(12), pp.56-62. https://doi.org/10.1109/MCOM.2016.1600462CM
  - Tiburski, R.T., Amaral, L.A., De Matos, E. and Hessel, F., 2015. The importance of a standard securit y archit ecture for SOA-based iot middleware. IEEE Communications Magazine, 53(12), pp.20-26. https://doi.org/10.1109/MCOM.2015.7355580
- **Conferences**:
  - Portal, G., de Matos, E. and Hessel, F., 2020, June. An edge decentralized security architecture for industrial iot applications. In 2020 IEEE 6th World Forum on Internet of Things (WF-IoT) (pp. 1-6). IEEE. https://doi.org/10.1109/WF-IoT48130.2020.9221176
  - Tiburski, R.T., de Matos, E. and Hessel, F., 2019, April. Evaluating the DTLS Protocol from CoAP in Fog-to-Fog Communications. In 2019 IEEE International Conference on Service-Oriented System Engineering (SOSE) (pp. 90-905). IEEE. https://doi.org/10.1109/SOSE.2019.00022
  - de Matos, E., Tiburski, R.T., Amaral, L.A. and Hessel, F., 2018, August. Providing context-aware security for IoT environments through context sharing feature. In 2018 17th IEEE international conference on trust, security and privacy in computing and communications/12th IEEE international conference on big data science and engineering (TrustCom/BigDataSE) (pp. 1711-1715). IEEE. https://doi.org/10.1109/TrustCom/BigDataSE.2018.00257
  - de Matos, E., Tiburski, R.T., Amaral, L.A. and Hessel, F., 2018, June. Context interoperability for IoT through an edge-centric context sharing architecture. In 2018 IEEE Symposium on Computers and Communications (ISCC) (pp. 00667-00670). IEEE. https://doi.org/10.1109/ISCC.2018.8538491
  - Tiburski, R.T., Amaral, L.A., de Matos, E., de Azevedo, D.F. and Hessel, F., 2017, January. Evaluating the use of TLS and DTLS protocols in IoT middleware systems applied to E-health. In 2017 14th IEEE Annual Consumer Communications & Networking Conference (CCNC) (pp. 480-485). IEEE. https://doi.org/10.1109/CCNC.2017.7983155
  - de Matos, E., Amaral, L.A., Tiburski, R.T., Schenfeld, M.C., de Azevedo, D.F. and Hessel, F., 2017, January. A sensing-as-a-service context-aware system for internet of things environments. In 2017 14th IEEE annual consumer communications & networking conference (CCNC) (pp. 724-727). IEEE. https://doi.org/10.1109/CCNC.2017.7983223
  - de Matos, E., Amaral, L.A., Tiburski, R., Lunardi, W., Hessel, F. and Marczak, S., 2015, September. Context-aware system for information services provision in the internet of things. In 2015 IEEE 20th Conference on Emerging Technologies & Factory Automation (ETFA) (pp. 1-4). IEEE. https://doi.org/10.1109/ETFA.2015.7301624
  - Lunardi, W.T., de Matos, E., Tiburski, R., Amaral, L.A., Marczak, S. and Hessel, F., 2015, September. Context-based search engine for industrial IoT: Discovery, search, selection, and usage of devices. In 2015 IEEE 20th Conference on emerging technologies & factory automation (ETFA) (pp. 1-8). IEEE. https://doi.org/10.1109/ETFA.2015.7301477
  - Amaral, L.A., Tiburski, R.T., de Matos, E. and Hessel, F., 2015, April. Cooperative middleware platform as a service for internet of things applications. In Proceedings of the 30th Annual ACM Symposium on Applied Computing (pp. 488-493). https://doi.org/10.1145/2695664.2695799
- **Book Chapters**:
  - Moratelli, C.R., Tiburski, R.T., de Matos, E., Portal, G., Johann, S.F. and Hessel, F., 2020. Privacy and security of Internet of Things devices. In Real-Time Data Analytics for Large Scale Sensor Data (pp. 183-214). Academic Press. https://doi.org/10.1016/B978-0-12-818014-3.00009-7
  - de Matos, E., Amaral, L.A. and Hessel, F., 2017. Context-aware systems: technologies and challenges in internet of everything environments. Beyond the internet of things: Everything interconnected, pp.1-25. https://doi.org/10.1007/978-3-319-50758-3_1
  - Amaral, L.A., de Matos, E., Tiburski, R.T., Hessel, F., Lunardi, W.T. and Marczak, S., 2016. Middleware technology for IoT systems: Challenges and perspectives toward 5G. Internet of Things (IoT) in 5G mobile technologies, pp.333-367. https://doi.org/10.1007/978-3-319-30913-2_15