



Document details

< Back to results | 1 of 2 Next >

↗ Export ⬇ Download 🖨 Print ✉ E-mail 📄 Save to PDF ☆ Add to List More... >

View at Publisher

Proceedings - 2019 International Conference on Information Systems and Computer Science, INCISCOS 2019
November 2019, Article number 9052264, Pages 57-61
4th International Conference on Information Systems and Computer Science, INCISCOS 2019; Quito, Pichincha; Ecuador; 20 November 2019 through 22 November 2019; Category numberCFP19O25-ART; Code 158934

A Data Infrastructure for Managing Information Obtained from Ambient Assisted Living (Conference Paper)

Valdez, W.^a ✉, Cedillo, P.^a ✉, Trujillo, A.^b ✉, Orellana, M.^b ✉

^aComputer Science Department, Universidad de Cuenca, Cuenca, Ecuador

^bComputer Research and Development Laboratory, Universidad Del Azuay, Cuenca, Ecuador

Abstract

View references (25)

The Internet of Things (IoT) is a current paradigm which can be part of several fields of application, and Healthcare is one of the most important. Ambient Assisted Living (AAL) is an important subfield in Healthcare. Also, services demand and network requirements of IoT systems due to the increase of connected devices and data flow overcharges Cloud. Fog Computing represents a new paradigm that lightens the network. Some applications use Fog Computing in order to reduce costs and improve performance of IoT applications. Healthcare is one of them and the implementation of Fog Computing architectures inside those systems is a new trend nowadays. The importance of having a data infrastructure in this kind of IoT systems is evident because of the relevance of the data. In this paper is presented a Data Infrastructure for Managing Information Obtained from Ambient Assisted Living. The model provides the data flow starting in the data reading in the IoT devices and ending in the Cloud by crossing Fog Computing Layer. The model considers communication protocols, security features and relationship between elements which take part in an AAL system. Moreover, the model was developed using Eclipse Modeling Tool and validated in the same tool by using an instantiation of the main classes of the model. © 2019 IEEE.

SciVal Topic Prominence ⓘ

Topic: Internet | Authentication | Fog computing

Prominence percentile: 99.924 ⓘ

Author keywords

- Ambient - Assisted - Living - Data - Infrastructure -Fog-Computing -Healthcare IoT

Indexed keywords

Engineering controlled terms: Assisted living Computer architecture Data flow analysis Data transfer Fog Fog computing Information systems Information use

Engineering uncontrolled terms: Ambient assisted living Ambient assisted living (AAL) Computing architecture Data infrastructure Improve performance Internet of thing (IOT) Network requirements Security features

Engineering main heading: Internet of things

Funding details

Metrics ⓘ View all metrics >



PlumX Metrics ⌵
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert >

Set citation feed >

Related documents

International workshop on Networking and Object Memories for the Internet of Things (NOME-IoT 2011)

Liu, C.H. , Kroener, A. , Speed, C. (2011) *UbiComp'11 - Proceedings of the 2011 ACM Conference on Ubiquitous Computing*

Real-World Applications and Research Challenges of Fog/Edge Services

Shekhar Rendla, C. , Gangadharan, G.R. , Wankar, R. (2018) *Proceedings of the International Conference on Inventive Communication and Computational Technologies, ICICCT 2018*

Intelligent behavior of fog computing with IOT for healthcare system

Kumar, Y. , Mahajan, M. (2019) *International Journal of Scientific and Technology Research*

View all related documents based on references

Find more related documents in Scopus based on:

Authors > Keywords >

Funding text

ACKNOWLEDGEMENT This development is part of the research projects called i) Design of architectures and interaction models for assisted living environments for elderly people. Study case: ludic and social environments, winner of the Call for Research Projects DIUC XVIII; and, ii) Fog Computing applied to monitoring devices used in assisted living environments; study case: platform for the elderly, winner of the Call for Research Projects DIUC XVII. Therefore, we thank "Dirección de Investigación de la Universidad de Cuenca DIUC" for its support. Also, this research was supported by the vice-rectorate of investigations of the Universidad del Azuay. We thank our colleagues from Laboratorio de Investigación y Desarrollo en Informática (LIDI) at Universidad del Azuay who provided insight and expertise that greatly assisted this work.

ISBN: 978-172815581-4

Source Type: Conference Proceeding

Original language: English




DOI: 10.1109/INCISCOS49368.2019.00018

Document Type: Conference Paper

Publisher: Institute of Electrical and Electronics Engineers Inc.

References (25)

[View in search results format >](#)

All [Export](#)  Print  E-mail  Save to PDF [Create bibliography](#)

-
- 1 Memon, M., Wagner, S.R., Pedersen, C.F., Aysha Beevi, F.H., Hansen, F.O.
Ambient Assisted Living healthcare frameworks, platforms, standards, and quality attributes ([Open Access](#))
- (2014) *Sensors (Switzerland)*, 14 (3), pp. 4312-4341. Cited 180 times.
<http://www.mdpi.com/1424-8220/14/3/4312/pdf>
doi: 10.3390/s140304312
- [View at Publisher](#)
-

- 2 Dohr, A., Modre-Osprian, R., Drobits, M., Hayn, D., Schreier, G.
The internet of things for ambient assisted living
- (2010) *ITNG2010 - 7th International Conference on Information Technology: New Generations*, art. no. 5501633, pp. 804-809. Cited 292 times.
ISBN: 978-076953984-3
doi: 10.1109/ITNG.2010.104
- [View at Publisher](#)
-

- 3 (2005) *The Internet of Things*, p. 212. Cited 397 times.
ITU Itu Internet Rep. 2005
-

- 4 Kortuem, G., Kawsar, F., Sundramoorthy, V., Fitton, D.
Smart objects as building blocks for the internet of things
- (2010) *IEEE Internet Computing*, 14 (1), art. no. 5342399, pp. 44-51. Cited 917 times.
doi: 10.1109/MIC.2009.143
- [View at Publisher](#)
-

- 5 Mell, P., Grance, T.
(2011) *The NIST Definition of Cloud Computing Recommendations of the National Institute of Standards and Technology*. Cited 5613 times.
-

- 6 Aazam, M., Khan, I., Alsaffar, A.A., Huh, E.-N.
Cloud of Things: Integrating Internet of Things and cloud computing and the issues involved

(2014) *Proceedings of 2014 11th International Bhurban Conference on Applied Sciences and Technology, IBCAST 2014*, art. no. 06778179, pp. 414-419. Cited 208 times.
doi: 10.1109/IBCAST.2014.6778179

[View at Publisher](#)

- 7 (2019) *IDC Forecasts Connected IoT Devices to Generate 79. 4ZB of Data in 2025*
FutureIoT

<https://futureiot.tech/idcforecasts-connected-iot-devices-to-generate-79-4zb-of-data-in-2025/>

- 8 Syed, M.H., Fernandez, E.B., Ilyas, M.
A pattern for fog computing
(2016) *Proceedings of the 10th Travelling Conference on Pattern Languages of Programs*, pp. 131-1310. Cited 19 times.
-

- 9 Ray, P.P.
A survey of IoT cloud platforms
(2016) *Futur. Comput. Informatics J*, 1 (1), pp. 35-46. Cited 125 times.
-

- 10 Iorga, M., Martin, M.J., Feldman, L.
(2018) *Fog Computing Conceptual Model NIST*. Cited 70 times.
Spec. Publ. 500-325
-

- 11 Dastjerdi, A.V., Buyya, R.
Fog Computing: Helping the Internet of Things Realize Its Potential

(2016) *Computer*, 49 (8), art. no. 7543455, pp. 112-116. Cited 377 times.
doi: 10.1109/MC.2016.245

[View at Publisher](#)

- 12 Bassi, A., Bauer, M., Fiedler, M., Kramp, T., van Kranenburg, R., Lange, S., Meissner, S.
Enabling things to talk: Designing IoT solutions with the IoT architectural reference model

(2013) *Enabling Things to Talk: Designing IoT Solutions with the IoT Architectural Reference Model*, pp. 1-349. Cited 155 times.

<http://dx.doi.org/ucuenca.idm.oclc.org/10.1007/978-3-642-40403-0>

ISBN: 978-364240403-0; 978-364240402-3

doi: 10.1007/978-3-642-40403-0

[View at Publisher](#)

- 13 Chiang, M., Zhang, T.
Fog and IoT: An Overview of Research Opportunities

(2016) *IEEE Internet of Things Journal*, 3 (6), art. no. 7498684, pp. 854-864. Cited 835 times.

<http://ieeexplore.ieee.org/servlet/opac?punumber=6488907>

doi: 10.1109/JIOT.2016.2584538

[View at Publisher](#)

- 14 Mahmud, R., Kotagiri, R., Buyya, R.
Fog Computing: A taxonomy, survey and future directions
(2018) *Internet of Things*, 0 (9789811058608), pp. 103-130. Cited 238 times.
<http://www.springer.com.ucuenca.idm.oclc.org/series/11636>
doi: 10.1007/978-981-10-5861-5_5
[View at Publisher](#)
-
- 15 Bauer, M., Bui, N., Loof, J.D., Magerkurth, C., Nettsträter, A., Stefa, J., Walewski, J.W.
IoT reference model ([Open Access](#))
(2013) *Enabling Things to Talk: Designing IoT Solutions with the IoT Architectural Reference Model*, pp. 163-211. Cited 23 times.
<http://dx.doi.org.ucuenca.idm.oclc.org/10.1007/978-3-642-40403-0>
ISBN: 978-364240403-0; 978-364240402-3
doi: 10.1007/978-3-642-40403-0_7
[View at Publisher](#)
-
- 16 Bermudez-Edo, M., Elsaleh, T., Barnaghi, P., Taylor, K.
IoT-Lite: A Lightweight Semantic Model for the Internet of Things
(2016) *Proceedings - 13th IEEE International Conference on Ubiquitous Intelligence and Computing, 13th IEEE International Conference on Advanced and Trusted Computing, 16th IEEE International Conference on Scalable Computing and Communications, IEEE International Conference on Cloud and Big Data Computing, IEEE International Conference on Internet of People and IEEE Smart World Congress and Workshops, UIC-ATC-ScalCom-CBDCCom-IoP-SmartWorld 2016*, art. no. 7816831, pp. 90-97. Cited 64 times.
ISBN: 978-150902770-5
doi: 10.1109/UIC-ATC-ScalCom-CBDCCom-IoP-SmartWorld.2016.0035
[View at Publisher](#)
-
- 17 Farahani, B., Firouzi, F., Chang, V., Badaroglu, M., Constant, N., Mankodiya, K.
Towards fog-driven IoT eHealth: Promises and challenges of IoT in medicine and healthcare
(2018) *Future Generation Computer Systems*, Part 2 78, pp. 659-676. Cited 183 times.
doi: 10.1016/j.future.2017.04.036
[View at Publisher](#)
-
- 18 Coyle, J.F., Mori, A.R., Huff, S.M.
Standards for detailed clinical models as the basis for medical data exchange and decision support
(2003) *International Journal of Medical Informatics*, 69 (2-3), pp. 157-174. Cited 52 times.
doi: 10.1016/S1386-5056(02)00103-X
[View at Publisher](#)
-
- 19 Smith, B.K., Nachtmann, H., Pohl, E.A., Smith, B.K., Nachtmann, H., Improving, E.A.P.
Improving healthcare supply chain processes via data standardization
(2016) *Eng. Manag. J.*, 9247, pp. 2-10.
April
-
- 20 Cerina, L., Notargiacomo, S., Paccaniti, M.G., Santambrogio, M.D.
A fog-computing architecture for preventive healthcare and assisted living in smart ambients
(2017) *RTSI 2017 - IEEE 3rd International Forum on Research and Technologies for Society and Industry, Conference Proceedings*, art. no. 8065939. Cited 24 times.
ISBN: 978-153863906-1
doi: 10.1109/RTSI.2017.8065939
[View at Publisher](#)

□ 21 Ray, P.P.
Home Health Hub Internet of Things (H³IoT): An architectural framework for monitoring health of elderly people
(2014) *2014 International Conference on Science Engineering and Management Research, ICSEMR 2014*, art. no. 7043542. Cited 50 times.
ISBN: 978-147997613-3
doi: 10.1109/ICSEMR.2014.7043542
[View at Publisher](#)

□ 22 Vora, J., Tanwar, S., Tyagi, S., Kumar, N., Rodrigues, J.J.P.C.
Home-based exercise system for patients using IoT enabled smart speaker
(2017) *2017 IEEE 19th International Conference on e-Health Networking, Applications and Services, Healthcom 2017*, 2017-December, pp. 1-6. Cited 19 times.
ISBN: 978-150906704-6
doi: 10.1109/HealthCom.2017.8210826
[View at Publisher](#)

□ 23 Parra, J.M., Valdez, W., Guevara, A., Cedillo, P., Ortiz-Segarra, J.
Intelligent pillbox: Automatic and programmable Assistive Technology device
(2017) *Proceedings of the 13th IASTED International Conference on Biomedical Engineering, BioMed 2017*, art. no. 7893271, pp. 74-81. Cited 4 times.
ISBN: 978-088986990-5
doi: 10.2316/P.2017.852-051
[View at Publisher](#)

□ 24 Dujovne, D., Watteyne, T., Vilajosana, X., Thubert, P.
6TiSCH: Deterministic IP-enabled industrial internet (of things)
(2014) *IEEE Communications Magazine*, 52 (12), art. no. 6979984, pp. 36-41. Cited 133 times.
doi: 10.1109/MCOM.2014.6979984
[View at Publisher](#)

□ 25 Aazam, M., Huh, E.-N.
Fog Computing: The Cloud-IoT/loE Middleware Paradigm
(2016) *IEEE Potentials*, 35 (3), art. no. 7466912, pp. 40-44. Cited 91 times.
<http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=45&year=2009>
doi: 10.1109/MPOT.2015.2456213
[View at Publisher](#)

© Copyright 2020 Elsevier B.V., All rights reserved.

< Back to results | 1 of 2 Next >

^ Top of page

About Scopus

What is Scopus

Content coverage

Scopus blog

Scopus API

Privacy matters

Language

[日本語に切り替える](#)

[切换到简体中文](#)

[切换到繁體中文](#)

[Русский язык](#)

Customer Service

[Help](#)

[Contact us](#)

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.