CURRICULUM VITAE

I.   (a) <u>Name</u>:   Ibiyinka Temilola <u>Ayorinde</u>
          (b) <u>Date of Birth</u>:   31 August, 1970
          (c) <u>Department</u>:   Computer Science
          (d) <u>Faculty</u>:   Science

II.   (a) <u>First Academic Appointment</u>:   Lecturer II (1 December, 2010)
          (b) <u>Present Post (with date)</u>:   Senior Lecturer (01 October, 2017)
          (c) <u>Date of Last Promotion</u>:   01 October, 2017
          (d) <u>Date Last Considered</u>
              <u>(in cases where promotion was not through)</u>:   Not Applicable

III.   <u>University Education (with dates)</u>:
          (i) Federal University of Technology, Akure.   1989-1995
          (ii) University of Ibadan, Ibadan.   2002-2005
          (iii) University of Ibadan, Ibadan.   2008-2014

IV.   <u>Academic Qualifications (with dates and granting bodies)</u>:
          (i) B.Tech. (Computer Science) (Akure).   1995
          (ii) M.Sc (Computer Science) (Ibadan).   2005
          (iii) Ph.D (Computer Science) (Ibadan).   2014

V.   <u>Professional Qualifications and Diplomas (with dates)</u>:
          Certificate of Proficiency (Train the Trainer - Enterprise   2015
          Systems Fundamentals with Systems Applications and
          Products (SAP) in Data Processing) (Cape Town).

VI.   <u>Scholarships, Fellowships and Prizes (with dates) in Respect</u>
        <u>of Undergraduate and Postgraduate Work Only</u>:   Nil

VII.   <u>Honours, Distinctions and Membership of Learned Societies</u>:
          (i) Member, Computer Professionals of Nigeria (CPN)
          (ii) Member, Nigerian Computer Society (NCS)
          (iii) Member, International Association of Engineers (IAENG)
          (iv) Member, International Society for Knowledge Organization (ISKO)

VIII. Details of Teaching/Work Experience:

(a)   Work Experience:
(i)   Systems Analyst/Programmer, The Polytechnic, Ibadan.   2001-2006
(ii)   Lecturer III, The Polytechnic, Ibadan.   2006-2009
(iii)   Lecturer II, The Polytechnic, Ibadan.   2009-2010
(iv)   Lecturer II, University of Ibadan.   2010-2014
(v)   Lecturer I, University of Ibadan.   2014-2017
(vi)   Senior Lecturer, University of Ibadan.   2017 to date

(b) Teaching Experience:
(i)   Undergraduate:
        Courses Taught in the Current Session (2018/2019):
        CSC 242   Foundations of Computer Science   (with one other)
        CSC 333   Software Engineering I
        CSC 234   Assembly Language Programming
        CSC 495   Project

        Other Courses Previously Taught:
        CSC 231   Scientific Programming
        CSC 321   Computer Operating System I
        CSC 334   Systems Programming
        CSC 351   Formal languages and Automata Theory
        CSC 391   File Management
        CSC 392   Computer Applications   (with one other)
        CSC 452   Theory of Computation
        CSC 492   Selected Topics in Computer Science   (with one other)

(ii)   Postgraduate:
        Courses Taught in the Current Session (2018/2019):
        CSC 758   Knowledge Based System
        MBC 706   IT Policy and Strategy

        Other Courses Previously Taught:
        MCS 734   Electronic Commerce
        CSC 773   Formal Methods in Software Engineering
        MCS 722   Data Management
        CSC 763   Introduction to Software Engineering
        MCS 712   IT Hardware and Software   (with one other)
        CSC 748   Introduction to Artificial Intelligence

(iii)   Research Supervision:
        Completed:
        M.Sc.   -   15

Ongoing (2018/2019):

M.Sc.	-	5
Ph.D.	-	6

(c)   <u>Administrative Responsibilities/Community Service:</u>

(i)	Level Adviser / Registration Officer for 100L	2010/2011, 2012/2013
(ii)	Ad-Hoc Member, Exam Committee	2012/2013
(iii)	Level Adviser / Registration Officer for 400L	2013/2014, 2014/2015
(iv)	Examination Officer	2013/2014, 2014/2015, 2015/2016, 2016/2017
(v)	Faculty of Science Representative at Board of ARCIS	Aug. 2016 - July 2017
(vi)	Member, Departmental Curriculum Committee	2016/2017
(vii)	NACOSS Adviser	2017/2018
(viii)	Member, Curriculum Committee	2017 Till date
(ix)	Level Adviser / Registration Officer for 300L	2018/2019
(x)	Departmental Representative, Enterprise Systems Education for Africa (ESEFA) Team, University of Ibadan. (Training Students on Systems Applications and Products in Data Processing (SAP) Certification Course)	2014 to date
(xi)	Reviewer of Ph.D Thesis of BABCOCK University	2014 to date
(xii)	Internal/External Examiner for MSc & MBC Computer Science	2014/2015, 2015/2016, 2018/2019
(xiii)	Reviewer of articles for ACM CoRI 2016 Conference	2016
(xiv)	Sub-Committee member of LOC for Faculty of Science Conference, University of Ibadan.	2017
(xv)	Reviewer of articles for University of Ibadan Journal of Science and Logics in ICT Research (UIJSLICTR)	2017 to date
(xvi)	Reviewer of articles for African Journal of Management Information System (Afr. J. MIS)	2018 to date
(xvii)	Examiner for Computer Professionals of Nigeria (CPN) Professional Examinations	2019 to date
(xviii)	Rapporteur at Faculty of Science Conference, University of Ibadan.	2019
(xix)	Member, Committee on University of Ibadan Collaboration with World Bank Assisted Ibadan Urban Flood Management Project (IUFMP)	2019 to date
(xx)	External Examiner for PhD Thesis at University of Kwazulu-Natal (UKZN), South Africa.	February, 2020

IX. Research

    (a)   Completed

    (i)   Investigation of the efficacy of artificial neural networks in classifying and predicting medical database.

    (ii)   Solving representational problems involving occurrents in organisations using formal ontology.

    (iii)   Applications of first order logic and description logic in knowledge representation.

    (iv)   Investigation of the importance of operational semantics in programming language.

    (v)   Causal and causal-like relationships between states, events and processes.

    (b).   Current Research

    (i)   Formalised blockchain activity ontology: This research work started in 2019. It is an exploration of blockchain technology, using the opportunities provided by the newly introduced smart contract, not just to serve as a form of cryptocurrency but to serve as a check to abusive behaviors in a domain with activity ontology.

    (ii)   Application of machine learning techniques: This research started in 2018. The research is majorly focussed on the application of machine learning techniques for classification and prediction of image datasets.

    (iii)   Knowledge modelling methodologies in Artificial Intelligence (AI): This research started in 2013. It has been found from the literature that there are potential problems with task independent approach or methodology when there is a need to widen our ontology to include complex entities. The representation of these complex entities is based on the building blocks of primitive entities. As such, the solutions that are proffered for their representation are not much different from the representational solutions proffered for specific reasoning scenarios. Where complex entities are involved, both task oriented and task independent activities can serve to advance the cause of building the ontologies. Hence, this research work intends to investigate task independent representation of complex continuants, such as recurrent events in order to study the applicability of the ontological model to different AI reasoning.

(c)   Project, Dissertation and Thesis

    (i)   Ayorinde I.T. (2005). Knowledge Discovery in Database (KDD) - A Case Study of Medical Database (Classification of Echocardiogram Report Using Artificial Neural Networks). M.Sc. Project, University of Ibadan, Ibadan. 69p.

    (ii)   Ayorinde I.T. (2014). A dynamic formal organisational ontology for solving representational problems involving occurrents. Ph.D Thesis, University of Ibadan, Ibadan. 143p.

X.   Publications:

Chapters in Books

1.   **Ayorinde, I.T.**, Akinkunmi, B.O. and Alao, Y.M. (2014). Course Registration Ontology for Students (A Case Study of Computer Science Department, University of Ibadan). In David, A. and Uwadia, C. (Eds.). Transition from Observation to Knowledge to Intelligence. Houdemont: ISKO-France. 115-123pp. ISBN 978-2-9546760-1-2. (France)

2.   **Ayorinde, I.T.** and Akinkunmi, B.O. (2019). Formalisation of Transition Between Occurrents in A Domain Ontology. In Ao, S. I., Castillo, O., Douglas, C., Feng, D. D. and Korsunsky, A. M. (Eds.). Lecture Notes in Engineering and Computer Science. Hong Kong in IMECS, 2019. 26-30pp. ISBN: 978-988-14048-5-5. ISSN: 2078-0958. (Hong Kong)

3.   **Ayorinde, I.T.** and Badmos Z. O. (2019). Development of Deep Learning Model on Mushroom Dataset towards Classifying Poisonous Mushroom with Feature Selection. In Odumuyiwa, V., Onifade, O., David, A. and Uwadia, C. (Eds.). Transition from Observation to Knowledge to Intelligence. Lagos, Nigeria. 225-237pp. ISBN: 978-978-976-000-8. (Nigeria)

Articles in Refereed Conference Proceedings:

4.   **Ayorinde, I.T.** and Osofisan, A.O. (2011). Prediction of Hypertensive Heart Diseases using Artificial Neural Networks. In Chang,W., Osofisan, A. O., Chiemeke, S., Boateng, R. and Longe, O. (Eds.). *Sustaining the Momentum and Extending the Reach: Proceedings of International Conference on Information and Communication Technology (ICT) for Development in Africa.* 23-26 March, 2011. Ota: Letters and Scripts Publishers. 204-208pp. (Nigeria)

5.   **Ayorinde, I.T.**, Sakpere, A.B. and Adekunle, O.F. (2012): Design and Implementation of A Parser With Error Correction And Recovery (A Case Study of Java Programming Language). *Proceedings of International Conference on ICT for Africa.* Imperial Royale Hotel, Kampala, 255 – 261pp. (Uganda)

6.   Akinkunmi, B.O., Bassey, P.C. and **Ayorinde, I.T.** (2013): A Comparative Analysis of Knowledge Modeling Methodologies in Artificial Intelligence Research. *Proceedings of International Conference of iSTEAMS Research Nexus.* University of Ibadan, Ibadan. 379–382pp. (Nigeria)

7.   **Ayorinde, I.T.** and Erhabor, E.A. (2016). Mind Analysis Game Using Android Mobile Technology. In Folajimi, Y. O. and Oladosu J. B. (Eds.). *Computing Research and Innovations: Proceedings of the 2nd Ibadan ACM International Conference on Computing Research and Innovations.* 7-9 September, 2016. Ibadan: Ibadan ACM Chapter. 223-226pp. (Nigeria)

Articles that have Already Appeared in Learned Journals:

8. **Ayorinde, I.T**. and Osofisan, A.O. (2010). Application of Artificial Neural Networks in Classifying Medical Database. *Journal of Science Research* Vol. 9: 12-18. (Nigeria)

9. **Ayorinde, I.T.** and Akinkunmi, B.O. (2013). Application of First-Order Logic in Knowledge Based Systems. *IEEE African Journal of Computing and ICTs.* Vol. 6. No. 3: 45-52. (Nigeria)

10. **Ayorinde, I.T.** and Akinkunmi, B.O. (2013). A Dynamic Ontology for Shared Representation of Knowledge of Establishments. *Journal of Science Research, Special Edition.* Vol. 12: 275-283. (Nigeria)

11. Akande, O., Akinkunmi, B.O. and **Ayorinde, I.T.** (2015). An Ontological Informatics on Development of Tablet Drug in Pharmaceutical Industry. *International Journal of Advanced Research in Computer Science.* Vol. 6. No. 8: 1-6. (India)

12. **Ayorinde, I.T.** and Akinyele, O.A. (2016). A Formal Activity Ontology for Postgraduate Admission Processes (A Case Study of University of Ibadan). *Ilorin Journal of Computer Science and Information Technology.* Vol. 1. No. 1: 1-18.(Nigeria) (Vol. 3 in 2020).

13. **Ayorinde, I.T.** (2016). Automatic Question Generation Using Natural Language Processing. *Computing Information Systems Development Informatics & Allied Research Journal.* Vol. 7. No. 4: 223-239 (Nigeria)

14. **Ayorinde,I.T.** and Iweala, C.N. (2017). Enhancing Personalization in E-Learning Systems using Ontology. *Journal of Digital Innovations and Contemp. Res. In Sc., Eng., & Tech..* Vol. 5. No. 2: 151-166. (United States of America)

15. **Ayorinde, I. T.**, Akinkunmi, B. O. and Adenuga, A. O. (2017). A Formalised Ontology of Election, *University of Ibadan Journal of Science and Logics in ICT Research* (UIJSLICTR), Vol. 1. 34 – 41. (Nigeria) (Vol. 5 in 2020)

16. **Ayorinde, I.T.**, Akinkunmi, B.O. and Ogundipe, T. A. (2017): A Formal Tourism Ontology (A Case Study of Nigeria). *International Journal of ICT & Management (*IJICTM). Vol. 5. No. 2: (8 pages). (Ghana)

17. Akinkunmi B. O., **Ayorinde, I. T** and Adebiyi A. (2018). Visualization of Communicating Sequential Processes Using State Transition Diagrams Technique. *Nigerian Journal of Science (NJS).* Vol. 52. No. 2: 21-30 (Nigeria)

18. **Ayorinde I. T.** and Idyorough P. N. (2018). A Pattern Matching Model For Identifying Deception. *The Journal of Computer Science and Its Applications* (JCSA). Vol. 25. No.2: 149-156. (Nigeria)

19. **Ayorinde, I. T.** (2019). Ontological Representation of Electrical Geophysical Methods, *University of Ibadan Journal of Science and Logics in ICT Research* (UIJSLICTR), Vol. 3. No. 1: 25 – 33. (Nigeria) (Vol. 5 in 2020).

20. **Ayorinde I. T.** and Oyedeji O. A. (2019). An Ontology for Intra-Campus Transport System (ICTS) (A Case Study of the University of Ibadan Campus). *Journal of Digital Innovations and Contemp. Res. In Sc., Eng., & Tech..* Vol. 7. No. 4: 65-78. (United States of America)

21. **Ayorinde I. T.** (2020). A Formalised Ontology of Musical Instruments. *International Journal of Computer Applications (IJCA).* Vol. 176 No. 24: 28-32, May 2020. DOI: 10.5120/ijca2020920235. (United States of America)

22. **Ayorinde I. T.** and Daniel A. A. (2020). Comparative Analysis of Scheduling Algorithms in *Cloud Computing Environment. Computing, Information Systems, Development Informatics & Allied Research Journal*. Vol. 11 No. 1: 53-66 (United States of America).

23. **Ayorinde I. T.** (2020). Programming and Operational Semantics. *Journal of Computer Science and Information Technology (JCSIT)*. (June, 2020. In Press). (United States of America)

Teaching Manuals

24. **Ayorinde I.T.** (2016). Management Information System. Lecture Note for University of Ibadan Distance Learning. (Nigeria)

25. **Ayorinde I.T.** (2016). Interaction Design. Lecture Note for University of Ibadan Distance Learning. (Nigeria)

26. **Ayorinde I.T.** (2019). Assembly Language Programming. Lecture Note for University of Ibadan Distance Learning. (Nigeria)

https://www.researchgate.net/profile/Ibiyinka_Ayorinde
https://scholar.google.com/citations?user=8kYIdEQAAAAJ&hl=en
https://www.linkedin.com/in/ibiyinka-temilola-ayorinde-7a4b8a3a/

XI.   Major Conferences Attended With Papers Read (in the last 5 years)

(i).   International Conference on Transition from Observation to Knowledge to Intelligence (TOKI), University of Lagos, Nigeria. 15- 16 August, 2019.
Paper Read: **Ayorinde, I.T.** and Badmos, Z. O. (2019). Development of Deep Learning Model on Mushroom Dataset towards Classifying Poisonous Mushroom with Feature Selection.

(ii).   International Multiconference of Engineers and Computer Scientists (IMECS), Hong Kong. 13-15 March, 2019.
Paper Read: **Ayorinde, I.T.** and Akinkunmi, B.O. (2019). Formalisation of Transition Between Occurrents in A Domain Ontology

(iii).   International Conference on Management, Communication and Technology (ICMCT). Academic City College, Ghana. 11 – 12 May, 2017.
Paper Read: **Ayorinde, I.T.**, Akinkunmi, B.O. and Ogundipe, T. A. (2017): A Formal Tourism Ontology (A Case Study of Nigeria).

(iv)   ACM International Conference on Computing Research and Innovations. University of Ibadan, Nigeria. 7-9 September, 2016.
Paper Read: **Ayorinde, I.T.** and Erhabor, E.A. (2016). Mind Analysis Game Using Android Mobile Technology

XII.   <u>Ten Best Publications that Reflect the Totality of my Contributions to Scholarship</u>

1.   **Ayorinde, I.T**. and Osofisan, A.O. (2010). Application of Artificial Neural Networks in Classifying Medical Database. *Journal of Science Research* Vol. 9: 12-18. (Nigeria) (Contribution: 80%).

2.   **Ayorinde, I.T.** and Akinkunmi, B.O. (2013). Application of First-Order Logic in Knowledge Based Systems. *IEEE African Journal of Computing and ICTs.* Vol. 6. No. 3: 45-52. (Nigeria) (Contribution: 70%).

3.   **Ayorinde, I.T.** and Akinkunmi, B.O. (2013). A Dynamic Ontology for Shared Representation of Knowledge of Establishments. *Journal of Science Research, Special Edition.* Vol. 12: 275-283. (Nigeria) (Contribution: 70%).

4.   **Ayorinde, I.T.** and Akinyele, O.A. (2016). A Formal Activity Ontology for Postgraduate Admission Processes (A Case Study of University of Ibadan). *Ilorin Journal of Computer Science and Information Technology.* Vol. 1. No. 1: 1-18.(Nigeria) (Contribution: 70%) (Vol. 3 in 2020).

5.   **Ayorinde, I.T.** and Iweala, C.N. (2017). Enhancing Personalization in E-Learning Systems using Ontology. *Journal of Digital Innovations and Contemp. Res. In Sc., Eng., & Tech..* Vol. 5. No. 2: 151-166. (United States of America) (Contribution: 80%).

6.   **Ayorinde, I.T.**, Akinkunmi, B.O. and Ogundipe, T. A. (2017): A Formal Tourism Ontology (A Case Study of Nigeria). *International Journal of ICT & Management (IJICTM).* Vol. 5. No. 2: (8 pages). (Ghana) (Contribution: 40%).

7.   **Ayorinde, I. T.** (2019). Ontological Representation of Electrical Geophysical Methods, *University of Ibadan Journal of Science and Logics in ICT Research* (UIJSLICTR), Vol. 3. No. 1: 25 – 33. (Nigeria) (Contribution: 100%) (Vol. 4 in 2020).

8.   **Ayorinde I. T.** and Oyedeji O. A. (2019). An Ontology for Intra-Campus Transport System (ICTS) (A Case Study of the University of Ibadan Campus). *Journal of Digital Innovations and Contemp. Res. In Sc., Eng., & Tech..* Vol. 7. No. 4: 65-78. (United States of America) (Contribution: 60%).

9.   **Ayorinde I. T.** (2020). A Formalised Ontology of Musical Instruments. *International Journal of Computer Applications (IJCA).* Vol. 176 No. 24: 28-32, May 2020. DOI: 10.5120/ijca2020920235. (United States of America) (Contribution: 100%).

10.   **Ayorinde I. T.** (2020). Programming and Operational Semantics. *Journal of Computer Science and Information Technology (JCSIT).* (June, 2020. In Press). (United States of America) (Contribution: 100%).

Research Focus:

My research area is majorly in knowledge representation, an area in artificial intelligence (AI). The major goals of artificial intelligence are to construct computer programs that perform at high levels of competence in cognitive tasks and to understand and develop computational models of human intelligence and these are being achieved with the help of knowledge representation and reasoning. Knowledge representation involves a knowledge base and an inference engine. The knowledge base refers to the set of sentences that describes knowledge about a domain (usually ontologies) while inference engine is the set of procedures that uses the represented knowledge to infer new facts from existing knowledge or answer queries.

I have worked extensively on formal ontologies, an aspect of knowledge representation that deals with the conceptualization of domains. My research works cover both activity and domain ontologies, which are application ontologies. I have leveraged on the expressivity of first order logic in building formal ontologies which are implemented with Prolog programming language and also leveraged on the fast deductions of descriptive logic in building ontologies which are implemented with Protégé, an ontology editor that uses HERMIT reasoner as a plugin. As ontology enhances the sharing of common understanding of the structure of information, these works can be used both as training tools and retrieval systems.

I have also worked on knowledge discovery in databases using data mining techniques. My research work here investigates the efficacy of artificial neural networks in classifying and predicting medical database. Likewise, I have used machine learning techniques for both classification and pattern matching processes.

Dr. Ibiyinka T. **Ayorinde**   17 August, 2020.