

Arvind W Kiwelekar

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Educational Profile

Doctor of Philosophy (<i>PhD</i>) , Department of Computer Science and Engineering Indian Institute of Technology Bombay, India Adviser: Prof. Rushikesh K Joshi	7.5 CGPA in I Sem	2012
<i>M. E. (Computer Engineering)</i> , Veermata Jijabai Technical Institute (VJTI) Mumbai University	First Class	1999
<i>B. E. (Computer Engineering)</i> , SGGS College of Engg. & Tech. Nanded, Marathwada University	Distinction Gold Medal	1991

Professional Experience (Total 29 years, 6 months)

Dr. Babasaheb Ambedkar Technological University, Lonere, India		
Professor	18th August 2012	to till date
Associate Professor	1 Jan 2006	17th August 2012
Assistant Professor	22 May 2003	1 Jan 2006
Lecturer	22 Nov. 1991	22 May 2003

Administration Profile

- Working as a Dean Value Education and Social Responsibility
- Worked as a Head of the Computer Engineering Department(HOD) **18 years.**
- Worked as a Registrar of Dr. B. A. Tech. University. (3 months)
- Worked Rector of a Boys Hostel with a capacity of 480 students. **4 years.**

Brief Research Profile

Publication Type	Number of Publications
Book	1 (Under review)
Book Chapter	15
International Journal Papers	8
Peer Reviewed International Conferences	26
PhD Student Guidance	9

Detailed Teaching Profile

Courses Taught During last Five Years

Sr. No.	Name of the Course	Level	Frequency
1	Artificial Intelligence	Under and Post Graduate	Ten
2	Software Architecture	Under and Post Graduate	Eight
3	Machine Learning	Under Graduate	Two
4.	Python Programming	Under-Graduate	Three
5.	Competitive Programming	Under-Graduate	One
6	Development Engineering	Under-Graduate	Two

Course Curriculum Development

Aligned the engineering programs of B. Tech.(Computer Engineering) and M. Tech.(Computer Engineering) conducted at Dr. B. A. Technology University to guidelines of Outcomes-based Education and National Board of Accreditation (NBA) India.

PhD Guidance

Sr. No.	Name	Topic	Remark
1.	Hansraj Wankhede	An Automated Classifier Framework for Engineering Examinations	Awarded. 2016
2	Rushali Deshmukh	Semantic Analysis for Natural Language Processing	Submitted
3	Sanjay Thakare	Social Network Analysis	Submitted
4.	Manjushri Laddha	Learning Analytics	Submitted
5	Amol Bhutada	Intelligent Agent Modeling for Economic Systems	Ongoing
6	Swanand Navandar	Cognitive Modeling for Software Language Learners	Ongoing
7.	Rachit Garg	Application of NLP for Logistics document Analysis	Ongoing
8.	Prasad Mahajan	Building Predictive Analytics Model for Logistics Industry	Ongoing
9.	Sanil Gandhi	Blockchain Based E-governance Models	Ongoing

Online Teaching

Sr. No.	Course	Media	Hosted by
1	A Full Course on Machine Learning	Video	YouTube
2	Machine Learning	Video and Web based Quizzes	Thinkific
3	ICT for Sustainable Development	Podcaset	Substack

Detailed Research Profile

- **Areas of Interests** Software Architecture, Ontology, Artificial Intelligence, ICT for Sustainable Development

Book

1. A book proposal on **Information and Communication Technology for Sustainable Development (ICT4SD): A concise Textbook** has been accepted and under review for publication as a monograph in *Advances in Sustainability Science and Technology* **Publisher:** Springer To be published in March 2022.

Book Chapters

1. A book chapter has been accepted for publication authored by Jyoti S Borade, Arvind W Kiwelekar, Laxman D. Netak, titled **Machine Learning Techniques for Grad-ing Students' Presentations.** in the proposed book on "Handbook of Intelligent Techniques in Educational process": Springer Nature Book Series: Learning and Analytics in Intelligent Systems. To be published in May 2021.
2. A book chapter has been accepted for publication authored by Vinayak K Mukkawar, Arvind W Kiwelekar, Laxman D. Netak, titled **Technological Evaluation of Virtual and Augmented Reality to impart Social Skills.** in the proposed book on "Handbook of Intelligent Techniques in Educational process": Springer Nature Book Series: Learning and Analytics in Intelligent Systems. To be published in May 2021.
3. A book chapter has been accepted for publication authored by Arvind W Kiwelekar, Yogesh N Patil, Laxman D. Netak, Sanil S Gandhi, titled **A Small-Scale Ontology to Represent Knowledge about Question Items** in the proposed book on "Handbook of Intelligent Techniques in Educational process": Springer Nature Book Series: Learning and Analytics in Intelligent Systems. To be published in May 2021.

4. A book chapter has been accepted for publication authored by Arvind W Kiwelekar, Manjushree D. Laddha, Laxman D. Netak, titled **Exemplar use cases of Learning Analytics for training teachers on data-driven teaching methods** in the proposed book on “Handbook of Intelligent Techniques in Educational process”: Springer Nature Book Series: Learning and Analytics in Intelligent Systems. To be published in May 2021.
5. A book chapter has been accepted for publication authored by Arvind W Kiwelekar, Varsha T Lokare, Laxman D. Netak, Swanand S Navandar, titled **EEG Analysis of Cognitive and Affective Mapping of Learning Activities.** in the proposed book on “Handbook of Intelligent Techniques in Educational process”: Springer Nature Book Series: Learning and Analytics in Intelligent Systems. To be published in May 2021.
6. A book chapter has been accepted for publication authored by Garg R., Kiwelekar A.W., Netak L.D. **AI-based Techniques of Smart Ships** in the proposed book on “ Smart-Ships”: Edited by Yang Xio Publisher: CRC To be published in Nov 2021.
7. Garg R., Kiwelekar A.W., Netak L.D., Bhate S.S. (2021) **Potential Use-Cases of Natural Language Processing for a Logistics Organization.** In: Gunjan V.K., Zurada J.M. (eds) Modern Approaches in Machine Learning and Cognitive Science: A Walkthrough. Studies in Computational Intelligence, vol 956. Springer, Cham.
8. Garg R., Kiwelekar A.W., Netak L.D., Bhate S.S. (2021) **Personalization of News for a Logistics Organisation by Finding Relevancy Using NLP.** In: Gunjan V.K., Zurada J.M. (eds) Modern Approaches in Machine Learning and Cognitive Science: A Walkthrough. Studies in Computational Intelligence, vol 956. Springer
9. Yogesh N. Patil, Arvind W Kiwelekar, Laxman D. Netak, Shankar B. Deosarkar, titled **A Decentralized and Autonomous Model to Administer University Examinations** in the proposed book on “Blockchain Technology for IoT Applications”: Springer Nature Book Series.
10. Galphade M., More N., Nikam V.B., Banerjee B., Kiwelekar A.W., **Understanding Deep Learning: Case Study Based Approach.** In: Suresh A., Paiva S. (eds) Deep Learning and Edge Computing Solutions for High Performance Computing. EAI/Springer Innovations in Communication and Computing. Springer, Cham.
11. Arvind W Kiwelekar, Pramod Patil, and Laxman Netak titled **Blockchain-based Security Service for Fog Computing** in the proposed book on “Security issues for Fog Computing” Publisher: Springer.
12. Arvind W Kiwelekar, Geetanjali Mahamunkar, and Laxman Netak titled **Deep Learning Techniques for Geospatial Data Analysis** in the proposed book on “Machine Learning Paradigms – Advances in Theory and Applications of Deep Learning” Publisher: Springer.
13. Arvind W Kiwelekar, Sanil Gandhi, on **Use-cases of Blockchain Technology for Humanitarian Engineering** in a book Information and Communication Technolo-

gies for Humanitarian Services edited by ‘Muhammad Nazrul Islam’ Publisher : IET Publication

14. Kiwelekar, Manjushree Laddha, Laxman Netak, Sanil Gandhi, **An Architectural Perspective for Learning Analytics**, in a Book “Advances in Learning Analytics” Publisher: Springer.
15. Gaurav Paliwal, Arvind W. Kiwelekar **A Product Line Architecture for Mobile Patient Monitoring System** in a book titled on Mobile Health (mHealth): The Technology Road Map published by Springer (2015).

Journal Papers

1. Rachit Garg, Arvind W Kiwelekar, Laxman D Netak, Akshay Ghodake, **i-Pulse: A NLP based novel approach for employee engagement in logistics organization**, International Journal of Information Management DataInsights, Volume 1, Issue 1, 2021.
2. Lokare, V.T., Kiwelekar, A.W., Barphe, S.S., Netak, L.D. and Jadhav, P.M., 2021. **Increasing Students Engagement during Virtual Classroom Teaching through Effective Use of Online Tools**. Journal of Engineering Education Transformations, 34, pp.44-49.
3. Lokare VT, Jhetam I, Kiwelekar AW, Netak LD. **A Blended Approach for Teaching Laboratory Course: Internet Technology**. Journal of Engineering Education Transformations. 2020 Jul 1;34(1):41-51.
4. Laddha, M. D., Lokare, V. T., Kiwelekar, A. W., Netak, L. D. (2021). **Performance Analysis of the Impact of Technical Skills on Employability**. International Journal of Performability Engineering, 17(4).
5. Manjushree D. Laddha, Varsha T. Lokare, Arvind W. Kiwelekar, Laxman D. Netak. **Classifications of the Summative Assessment for Revised Bloom’s Taxonomy** by using Deep Learning International Journal of Engineering Trends and Technology, 69(3),211-218.
6. Hansraj Wankhede, Arvind W Kiwelekar, **Qualitative assessment of software engineering examination questions with Bloom’s taxonomy**, Indian Journal of Science and Technology, Vol. 9 Issue 6 P 1-7, Feb 2016
7. Published a paper on **Efficient Network Management using SNMP**, authored by Laxman D. Netak and Arvind W. Kiwelekar in the **Journal of Network Systems Management** published by Springer-Verlag. Vol-14, Number 2 Year 2006, Pages 189-194.
8. Published a paper on **Assessing the need to introduce Electromagnetic Interference and compatibility studies in Engineering curriculum**, authored by S. B. Deosarkar, Arvind W. Kiwelekar A. B. Nandgaonkar; T. R. Sontakke ; Annapurna

Conference Papers

1. A Conference paper has been Accepted authored by Sanil S Gandhi, Arvind W Kiwelekar and Laxman D Netak **Security Requirement Analysis of Blockchain-based E-Voting Systems** in the The 20th International Conference on e-Learning, e-Business, Enterprise Information Systems, e-Government (EEE-2021) to be held at Las Vegas USA from July 26-29, 2021.
2. A Conference paper has been Accepted authored by Ritu Gala, Revathi Vijayaraghavan, Valmik Nikam, and Arvind W. Kiwelekar: **Real-Time Cognitive Evaluation of Online Learners through Automatically Generated Questions** in the The 20th International Conference on e-Learning, e-Business, Enterprise Information Systems, e-Government (EEE-2021) to be held at Las Vegas USA from July 26-29, 2021.
3. A Conference paper has been Accepted authored by Gitanjali S Mahamunkar, Arvind W Kiwelekar and Laxman D Netak **Mapping and Change Detection of Mangroves using Remote Sensing and Google Earth Engine: A Case Study** in the Sixth International Conference on ICT for Sustainable Development to be held at Goa-India from 5-6 August 2021.
4. A Conference paper has been Accepted authored by Jyoti Borude, Arvind W Kiwelekar and Laxman D Netak **Feature Extraction for Automatic Grading of Students' Presentations** in the Sixth International Conference on ICT for Sustainable Development to be held at Goa-India from 5-6 August 2021.
5. Arvind W Kiwelekar, Swanand Navandar and Dharmendra K Yadav **A Two-Systems Perspective of Computational Thinking** published 12th International Conference on Intelligent Human-Computer Interaction (IHCI2020) at Exco-Daego South Korea from 24th to 26th November 2020.
6. Prasad Mahajan, Arvind W Kiwelekar, Laxaman D Netak, titled, **Predicting Expected Time of Arrival of Shipments through Multiple Linear Regression** has been accepted in 2nd International Conference on Data Science, Machine Learning & Applications(ICDSMLA) (5th -6th December 2020), Pune Publisher: Springer.
7. Manjushree D. Laddha, Arvind W Kiwelekar, Laxaman D Netak, titled, **To Predict Employability of Student by using Artificial Neural Network** has been accepted in 2nd International Conference on Data Science, Machine Learning & Applications(ICDSMLA) (5th -6th December 2020), Pune Publisher: Springer.
8. Rushali Deshmukh, Arvind W Kiwelekar, **Classification of Marathi text using Hierarchical Attention based encoder decoder model**, International Conference On Sentimental Analysis And Deep Learning (ICSADL 2020), Coimbtur India. 2-3 April 2020.

9. Rushali Deshmukh, Arvind W Kiwelekar, **Deep Learning Techniques for Part of Speech Tagging of Marathi Text**, International Conference on Innovative Mechanisms for Industry Applications (ICIMIA 2020, Bangalore, India. 5-7 March 2020. Publisher: IEEE Xplore.
10. Sanjay B Thakre Arvind W Kiwelekar, **SkipLPA: An Efficient Label Propagation Algorithm for Community Detection in Sparse Network**, 9th Annual ACM India Conference (ACM COMPUTE 2016), Gandhinagar, India. 21-23 Oct-2016.
11. Arvind W Kiwelekar, Hansraj S Wankhede, **Learning Objectives for a Course on Software Architecture**, in the proceedings of 9th European Conference on Software Architecture 2015 (ECSA 2015) held in Dubrovnik, Croatia from 9th to 11 September 2015.
12. Arvind W Kiwelekar and Rushikesh K Joshi, **An Ontological Framework for Architectural Model Integration** In Proc. of TwinPeaks 2014, *Fourth International Workshop on the Twin Peaks of Requirements and Architecture* to be held with 36th International Conference on Software Engineering (ICSE 2014), June 2014 **Rank A Conference**
13. Gaurav Paliwal, Arvind W. Kiwelekar **A Comparison of Mobile Patient Monitoring Systems.** in the Proceeding of Second International Conference on Health Information Systems (HIS 2013): 198-209 Publisher Springer
14. Vaibhav M Kale Arvind W Kiwelekar, **An algorithm for question paper template generation**, in the Proceedings of International Conference on Technological Advances in Electrical, Electronics and Computer Engineering (TAECE), 2013 held from Konya, Turkey from 9th May to 11th May 2013 Publisher IEEE.
15. Arvind W. Kiwelekar and Rushikesh K. Joshi. **Ontological Interpretation of Object-Oriented Programming Abstractions**, In the proceedings 13th International Working Conference on Source Code Analysis and Manipulation (SCAM 2013) held in Eindhoven, Netherlands, September 22-23, 2013 Pages 180-190. **Rank C Conference**
16. Arvind W. Kiwelekar and Rushikesh K. Joshi. **Identifying architectural connectors through formal concept analysis of communication primitives.** In Software Architecture, 4th European Conference, ECSA 2010, Copenhagen, Denmark, August 23-26, 2010. Proceedings, pages 515–518, 2010 **Rank A Conference**
17. Arvind W. Kiwelekar and Rushikesh K. Joshi. **Ontological analysis for generating base-line architectural descriptions.** In Software Architecture, 4th European Conference, ECSA 2010, Copenhagen, Denmark, August 23-26, 2010. Proceedings, pages 417–424, 2010 **Rank A Conference**
18. Arvind W. Kiwelekar and Rushikesh K. Joshi. **Empowering primitive architectural connectors with aspects.** In International Conference on Contours of Computing Technology (ThinkQuest, Mumbai), pages 183 to 187, 2010

19. Arvind W. Kiwelekar and Rushikesh K. Joshi. **Extracting high-level Component-Connector view from detailed UML models: A case study.** In 31st Annual International Computer Software and Applications Conference (COMPSAC 2007), 24-27 July 2007, Beijing, China, pages 527–534, 2007 **Rank B Conference**
20. Arvind W Kiwelekar and Rushikesh K Joshi. **An object oriented metamodel for bunge-wand-weber ontology.** In Proc. of SWeCKa 2007, *Workshop on Semantic Web for Collaborative Knowledge Acquisition at IJCAI 2007*, January 2007 **Rank A Conference**
21. Arvind W Kiwelekar, Sachin Bojewar, Effort Estimation Models for Component Based Software Development, in the International Workshop on Software Design and Architecture (SODA-2002) which was held from 21st December 2002 to 22nd December-2002 in Bangalore- India.
22. Arvind W Kiwelekar, Y. N. Patil and S. U Waikar, **Evaluating Performance of Beowulf Class Cluster**, in the National Conference on Mathematical and Computational Models (NCMCM), which was held in PSG College of Technology, Coimbtore from 27 to 28th December 2001.
23. Arvind W Kiwelekar, P. K. Sinha **Evaluating CORBA as Cluster Middleware for Heterogeneous Cluster**, in an International Conference on Advanced Computing and Communications (ADCOM-2001) , which was held in Bhubneshwar from 17th Dec. 2001 to 20th Dec. 2001.
24. Arvind W Kiwelekar, Y. N. Patil **Lexicon Query Service: A CORBA Facility for Medical Terminology System**, is published in the proceedings of the National Conference on Medical Informatics, held in Hyderabad organized by Institute of Public Enterprises from 23/02/2000 to 24/02/2000
25. Arvind W Kiwelekar **Accounting System for Linux Based Network of Workstation**, is published in the proceedings of the First National conference on recent trends in Advanced Computing (NCRATAC-2000) , which was held from 9/02/2000 to 10/02/2000 organized M. S. University, Thirunelveli.
26. Arvind W Kiwelekar, P. K. Sinha **Accounting System for MPP Class Machine based on Cluster Computing**, in the 6th International Conference on Advanced Computing (ADCOMP-98) organized by C-DAC, Pune.

Pre-prints on Archival Server

1. Kiwelekar, Arvind W. **A Software Architecture Teacher’s Dilemmas.** arXiv preprint arXiv:2101.09434 (2021).
2. Thakare S, Kiwelekar AW. **Recovery and Analysis of Architecture Descriptions using Centrality Measures.** arXiv preprint arXiv:2101.09422. 2021 Jan 23.
3. Kiwelekar AW. **Role of Ontology Training to Software Engineering Students.** arXiv preprint arXiv:1910.07968. 2019 Oct 17.

4. Hansraj S Wankhede, Sanil Gandhi, Arvind W Kiwelekar, **On Which Skills do Indian Universities Evaluate Software Engineering Students?**, CoRR 2016

Tutorials and Invited Talks (5 International, 1 National)

1. Delivered an Invited talk on, *Next Generation Middleware*, in the **International Workshop on Distributed Computing (WDC-2001)** organized by Gujrath University, Ahmedabad from 19th to 21 December 2001
2. Accepted a Tutorial on *Distributed Object Computing using Java/ORB* in the **International Conference on Parallel System and Distributed Symposium” (IPDPS 2001)** which was held in **Sanfrancisco, USA**, from 23 April 2001 to 27th April 2001 **Rank A Conference**
3. Conducted a Tutorial on, *Next Generation Middleware*, in the **3rd International Conference on Information Technology (CIT-2000)** which was held from 20 December 2000 to 22 December 2000 at KIIT Bhuvneshvar, India
4. Conducted a Tutorial on, *CORBA: As a Cluster Middleware*, in the **2nd International conference on Cluster Computing(Cluster-2000)** organized by **IEEE TFCC at Universitat of Techninische, Chemnitz, Saxony, Germany** from 25th Nov. 2000 to 1 Dec. 2000 **Rank A Conference**
5. Delivered an Invited Talk on *Distributed Object Computing using CORBA*, in **National Seminar on Information Technology-Current Trends-2000 (IT-CT2000)** on 23/01/2000 organized by University of Amaravati, Amaravati.
6. Conducted a tutorial on, *Distributed Object Computing using CORBA*, in the **7th International conference on Advanced Computing (ADCOM-99)** held from 20/12/199 to 22/12/1999 organized by University of Roorkee.

Organizational Activities(Three Conferences and four Training Programs)

1. Working as a Member of the Technical Program Committee AFEC 2021 The **2nd IEEE International Workshop on Advances in Fog/Edge Computing (AFEC 2021)** July 19 – July 22, 2021, Athens, Greece
2. Worked as Member of Technical Program Committee and Chaired a special session on “Cognitive Learning Analytics” in the 12th International Conference on “Intelligent Human-Computer Interaction (IHCI-2020)” to be held from 24th to 26th Nov. 2020 EXCO-Daegu South Korea
3. Worked as member of Technical program committee *AFEC 2020 The 1st IEEE International Workshop on Advances in Fog/Edge Computing (AFEC 2020)* August 3 - August 6, 2020, Honolulu, Hawaii, USA

4. Organized One Week Short-Term Training Program on *Software Architecture* which was held from 22nd Sept 2016 to 27th Sept 2016. The programmer was sponsored by TEQIP(II).
5. Worked as a **Organizing Chair** for *5th National Conference on Object Oriented Technology(NCOOT-2003)* held at Dr. Babasaheb Ambedkar Technological University, Lonere from 8th August 2003 to 9th August 2003
6. Worked as a **Member of the organizing committee** for the *Annual Convention of ISTE Maharashtra-Goa Section* hosted by the Dr. Babasaheb Ambedkar Technological University, Lonere
7. Organized Two Weeks Short Term Training Program on *Introduction to Software Architecture* which was held from 23rd June 2003 to 7th July 2003. The programmer was sponsored by All India Council for Technical Education.
8. Organized Two Weeks Short Term Training Program on *Distributed Object Computing using Java/CORBA* which was held from 4th February 2002 to 16th February 2002. The programmer was sponsored by All India Council for Technical Education.
9. Organized Two Weeks Short Term Training Program on *Embedded System Design* which was held from 24th November 2003 to 5th December 2003. The programmer was sponsored by All India Council for Technical Education.

Research Lab Experience

Sr. No.	Name of the Research Lab	Supervisor	Project	Duration
1.	IBM India Research Lab Bangalore	Dr. H P Raghunandan	Ontological Modeling and Software Architecture	January 2008
2	Tata Institute of Fundamental Research (TIFR) Bombay	Dr. R K Shyamsundar	To Design, Implement and performance benchmarking of Beowulf Class Cluster	June to August.2000
3	Center for Advanced Computing (CDAC),Pune	Dr. P. K. Sinha	To Design and Implement a System Accounting Package for PARAM.	June 97 to Feb. 98

Fellowships and Awards

1. Recipient of Summer Vacation Research Fellowship for Teachers from Indian Academy of Sciences,
2. PhD program at IIT-Bombay was funded by Ministry of Human Resource Development (MHRD) India under Quality Improvement Program (QIP) scheme.

3. PhD program at IIT Bombay was partially funded by IBM fellowship under CAS.
4. A group alumnus of the Department of Computer Engineering at DBATU has constituted an award in recognition of my contribution bearing initials (AWK Prize) for the students of the department. The group includes (Abhijeet Kattee, Priyanka Ghanvat, Swati Waghmare, Dipesh Khatate, and Shewta Badhe. Thanks to all my students!.

Membership of Professional Bodies

1. Member of Association of Computing Machinery (ACM) since May 2015.
2. Life Member of Indian Society of Technical Education (ISTE)

Revenue Generation

1. Obtained Rupees Rs. 48 Lakhs (USD 69,400) from ATA Freight, a Logistics Service Provider, to support the cost of education of four Ph. D. students.
2. Obtained Rupees Rs. 736 Lakhs (USD 10,64,035) from Ministry of Human Resource Development, Government of India, to establish Teachers Training Center
3. Obtained Rupees Rs. 10 Lakhs (USD 14,362) from All India Council of Technical Education (AICTE) to establish a training Center for training SC and ST students on Competitive Programming under the PRERANA scheme.