Dr. Nirali Nanavati

Curriculum Vitae

"The only thing greater than the power of the mind is the courage of the heart" - John Nash

Education

2010–2015	**Ph.D.**, *Sardar Vallabhbhai National Institute of Technology (SVNIT)*, Surat, India, *GPA – 9.6*.
2006–2008	**Master of Computer Science**, *New Jersey Institute of Technology (NJIT)*, Newark, U.S.A. , *GPA – 3.7/4.0*.
2000–2004	**Bachelor of Computer Engineering**, *G.H. Patel College of Engineering and Technology (GCET)*, V.V.N.,India, *GPA – 3.4/4.0*.

Ph.D. Thesis

Title	*Investigating Privacy Preserving Approaches for Collaborative Association Rule Mining*
Supervisor	Professor Devesh C. Jinwala

Experience

Vocational

2023–present	**Associate Professor**, SCET, Surat, India.
	IPR Cell Co-ordinator, Ph.D. Supervisor (SU), Lecturer for subjects like Python and SQL for Data Science, Artificial Intelligence, Research and Innovation and Machine Learning at the under-graduate level.Department representative for the R and D cell and IIC cell at college level. Ph.D Guide for 3 Research Scholars.

2016–2023 **Assistant Professor**, SCET, Surat, India.

GTU approved PhD Supervisor in 2018.Lecturer for subjects like Python Programming, Data Mining and Business Intelligence, Information and Network Security, Computer Programming and Utilization, Database Management Systems and Artificial Intelligence at the under-graduate level and Advanced Machine Learning, Data Mining and Mathematical Foundations in Computer Science at the post-graduate level.Department representative for the R and D department at college level.Part of the Intranet committee, Academic committee at the department. Visiting lecturer at SVNIT, Surat for the subject Data Science for the third year under-graduate students.On the interview panel for GTU for the recruitment of Assistant Professor for the Computer Engineering Department.Collaborated with IIT Mandi for project guidance and IIT Mumbai for student internships.Undertaking Consultancy work in the field of Data Science and Machine Learning. Submitted a Research Proposal to AICTE based on Machine Learning for Neurological Disorders. On the jury panel for the progress seminars of PhD students at GTU. Involved in syllabus design for subjects like Artificial Intelligence, Machine Learning, Deep Learning, Probability and Statistics, Privacy in Data

2009–2016 **Lecturer and Pursued Ph.D.**, SVNIT, Surat, India.

A lecturer for subjects like Database management Systems, Knowledge based management systems, Artificial Intelligence, Data Sciences. Mentored/guided undergraduate final year projects. Defined the course curriculum for Knowledge Based management Systems and Data Science. Course co-ordinator for various subjects like Database management Systems, Knowledge based management systems and Data Science. Pursued Ph.D. from 2010 to 2015.

2008–2009 **Technical Analyst and Junior DBA**, IBM, San Francisco, United States, Client: Louis Vuitton, San Francisco, United States.

Role involved technical analysis and resolution of various issues faced in the ATG based website eluxury.com.Was involved in optimizing the database, doing enhancements in Crystal Reports and Oracle db as requested by business. Located on - site, successfully bridged the gap between the off - shore team in France and the above mentioned client.

2007 **Programmer Analyst Intern**, HALCYON VIRTUAL, Atlanta, United States.

Role involved interaction with the client and business analysts for requirement gathering and developing process definitions. Also developed modules using EJB, WebLogic and MS SQL Server and created manual test cases for UAT.

2004–2006 **Programmer Analyst**, INFOSYS, Pune, India, Client: CapitalOne, Richmond, United States.

Technical Developer for a project InBound Decisioning. Role involved analyzing and maintaining various requests of the client. It was a project dealing with the maintenance of various requests for Credit Card users' retention. The programming was mainly done using BEA WebLogic. Developed modules in Java and created extensive documentation for all the initiatives. I was also the Tech Lead for a project Imaging. Role involved analyzing and developing modules for a project Imaging. It dealt with coding the Pro-C modules for the entire Imaging Application. The database repository used was Filenet. My role also involved developing YODA shell scripts and testing them. I also worked as the QA Lead for a project called Online Account Services. Role involved quality assurance tasks for Online Account Services using tools like Test Director, Ouick Test Pro and Toad. This project was rated a CMMi Level 5 project. Created extensive documentation for all the initiatives.

Publications

Patents

"Group Based Targetted Marketing System for the Physical World", *Publication Date: 18-09-2020, Filing Date: 22-07-2019*, **Published on IPO India Site**, Application No: 201921029555.

Book Chapters

S. Bodiwala and N. R. Nanavati, "Stochastic Computing for Deep Neural Networks", "Computing Technologies and Applications: Paving Path To-wards Society 5.0", **CRC Press (Taylor and Francis)**, chapter 9, 2021.

N. R. Nanavati and D. C. Jinwala, "Information-theoretically Secure Privacy Preserving Approaches for Collaborative Association Rule Mining," *Computer and Network Security Essentials*, **Springer**, chapter 4, pp 65-78, aug 2017.

Articles in peer reviewed journals

S. Bodiwala and N.R. Nanavati, "CDIPEM: Cardiovascular Disease Incidence Probability Estimation CNN Model.", Journal of Information and Optimization Sciences, **Taru Publications**, vol. 44, no.5, pp 865-894, 2023, indexed at **ESCI, Scopus**.

N. Patel and N.R. Nanavati, "A State of the Art Review on User Behavioral Issues in Online Social Networks.", Recent Advances in Computer Science and Communications, **Bentham Science Publishers**, vol. 16, no.2, pp 81-95, 2023, indexed at **Scopus**.

S. Bodiwala and N.R. Nanavati, "An efficient stochastic computing based deep neural network accelerator with optimized activation functions.", International Journal of Information Technology, **Springer**, vol. 13, no.3, pp 1179-1192, 2021, indexed at **Scopus, UGC-Care**.

V. Joshi and N.R. Nanavati, "A review of EEG signal analysis for diagnosis of neurological disorders using machine learning.", Journal of Biomedical Photonics and Engineering, vol. 7, no.4, 2021, indexed at **Scopus**.

S. Bodiwala and N. R. Nanavati, "Efficient Implementation of Stochastic Computing Based Deep Neural Network on Low Cost Hardware with Saturation Arithmetic,"*Journal of Computer Science*,**Science Publications**, vol.16, no.11, pp 1570-1584, 2020, indexed at **SCOPUS, UGC Care**.

N. R. Nanavati, P. Lalwani, and D. C. Jinwala, "Novel Game Theoretic Privacy Preserving Construction for Rational and Malicious Secret Sharing Models for Collaborative Frequent Itemset Mining,"*International Journal of Knowledge Engineering and Data Mining*,**Inderscience**, vol. 4, no. 3/4, pp 320-346, 2017, indexed at **ACM DL, DBLP and INSPEC**.

N. R. Nanavati and D. C. Jinwala, "A Novel Privacy Preserving Scheme for Collaborative Frequent Itemset Mining Across Vertically Partitioned Data," *Security and Communication Networks*, **Wiley Online Library**,vol. 8, no. 18, pp 4407-4420, dec 2015, indexed at **Thomson Reuters(SCI) and DBLP**.

N. R. Nanavati, N. Sen, and D. C. Jinwala, "Analysis and Evaluation of Efficient Privacy Preserving Techniques for Finding Global Cycles in Temporal Association Rules across Distributed Databases ," *International Journal of Distributed Systems and Technologies (IJDST)*, **IGI Global**, vol. 5, no. 3, pp 58-76, oct 2014, indexed at **ACM DL, INSPEC, SCOPUS and DBLP.**

N. R. Nanavati, P. Lalwani, and D. C. Jinwala, "Analysis and Evaluation of Schemes for Secure Sum in Collaborative Frequent Itemset Mining across Horizontally Partitioned Data," *Journal of Engineering*, **Hindawi Publishing Corporation**, Article ID 470416, vol. 2014, no. November, p. 10, nov 2014, indexed at **INSPEC**.

Publications in International Conference Proceedings

A. Doshi, H. Patel, R. Patel, B. Satasiya, M. Kapadia and N. R. Nanavati, " Audio peripheral volume automation based on the surrounding environment and individual human listening traits", International Conference on Smart Systems: Innovations in Computing, India, Jan 2021, indexed in **LNNS Springer**.

S.Bodiwala and N.Nanavati, "Efficient Hardware Implementation of Deep Neural Networks: A Survey)," in *International Conference on Inventive Systems and Control (ICISC 2020)*,**Coimbatore, India**, jan 2020,pp 31-36 indexed at **IEEE Xplore, INSPEC.**

S.Garg, D.Mohnani, D. Sachwani, M. Savani, N Nanavati, "A Novel Budget-based Collaborative Recommendation System for Tourism (BCRS)," in *International Conference on Computing, Communications, and Cyber-Security (IC4S 2019)*,**Chandigarh, India**, oct 2019,pp 713-724 indexed at **Springer LNNS, Scopus.**

N. Hadiya and N. Nanavati, "Natural Language Processing based Sentiment Analysis on Major Indian Languages.," in *International Conference on Computing Methodologies and Communication (ICCMC 2019)*,**India**, mar 2019,indexed at **IEEE XPlore, SCOPUS.**

M. Zinzuvadiya, V. Dhameliya, S. Vaghela, S. Patki, N. Nanavati, A. Bhavsar, "Co-Detection in Images using Saliency and Siamese Networks.," in *(CVIP 2018)*,**Jabalpur, India**, 2018,pp 713-724 indexed at **Springer.(Awarded the Best Poster Paper)**

J. Vanasiwala and N. R. Nanavati, "Multiple Sensitive Attributes Based Privacy Preserving Data Publishing," in *International Conference on Computing Methodoligies and Communication (ICCMC)*, **IEEE**,**Erode, India**, feb 2018, indexed at **IEEE Xplore.**

A. Agarwal and N. R. Nanavati, "Association rule mining using hybrid GA-PSO for multi-objective optimisation," in *International Conference on Computational Intelligence and Computing Research (ICCIC)*, **IEEE**,**Chennai, India,**, dec 2016, pp. 241-247, indexed at **IEEE Xplore.(Awarded the Best paper in the corresponding track)**

N. R. Nanavati and D. C. Jinwala, "A Game Theory Based Repeated Rational Secret Sharing Scheme For Privacy Preserving Distributed Data Mining," in *International Conference on Security and Cryptography (SECRYPT)*, **Rome, Italy,** SciTePress, july 2013, pp. 512-517, indexed at **DBLP**.

N. R. Nanavati and D. C. Jinwala, "Privacy preserving approaches for global cycle detections for cyclic association rules in distributed databases," in *International Conference on Security and Cryptography* **(SECRYPT)**, **Reykjavik, Iceland,** SciTePress, july 2012, pp. 368-371, indexed at **DBLP**.

N. R. Nanavati and D. C. Jinwala, "Privacy preservation for global cyclic associations in distributed databases," in *International Conference on Communication, Computing & Security (ICCCS), Procedia Technology*, Rourkela, Odisha, **Elsevier**, vol. 6, no. 0, pp. 962-969, oct 2012.

National Conferences/ Workshops/ Symposiums

N. R. Nanavati and D. C. Jinwala, "A novel privacy preserving game theoretic repeated rational secret sharing scheme for distributed data mining," *Security and Privacy Symposium*, Organized by **IIT Kanpur**, IIIT Delhi and BITS Pilani - Hydrabad Campus at IIT Kanpur, feb 2013.

N. R. Nanavati and D. C. Jinwala, "Investigating Privacy Preserving Approaches For Collaborative Association Rule Mining," *Fourth **IDRBT** Doctoral Colloquium*, Hyderabad, Institute for Development and Research in Banking Technology (IDRBT) (Established by Reserve bank of India), dec 2014.

N. R. Nanavati and D. C. Jinwala, "Investigating Privacy Preserving Approaches For Collaborative Association Rule Mining," *Inter Research Student Seminar in Computer Science(IRISS)*, Goa, **ACM**, feb 2015.

Consultancy Project

Working and Leading a Machine Learning and Data Science based Consultancy Project on IVF Predictions for a leading hospital in Surat, Gujarat.

Awards

CSI Inapp Project Award 2021	Mentor of the 7 member team that was awarded the "First Prize" for the machine learning based project "Medical Image Translation" in the 10th Computer Society of India-InApp National Student Project Awards 2021 among 650 entries across India.
CSI Inapp Project Award 2020	Mentor of the 6 member team that was awarded the "Special Jury Prize" (Second Runners up) for the machine learning based project "AI-Birdie" in the 9th Computer Society of India-InApp National Student Project Awards 2020 among 650 entries across India.
CSI Project Award 2019	Guided the student group that won the Best Project Award in the Software Category for the project "Digital Salesman" in the National Event called Innovations 2019 organized by CSI.
SIH 2019	Mentored the Student group that reached the final round for the All India Smart India Hackathon 2019 in the Innovations category for the project called "PlantNet".
Best Poster Paper - CVIP	Awarded the Best Poster Paper for the following contribution at the renowned conference CVIP 2018: M. Zinzuvadiya, V. Dhameliya, S. Vaghela, S. Patki, N. Nanavati, A. Bhavsar. "Co-Detection in Images using Saliency and Siamese Networks." Computer Vision and Image Processing (CVIP 2018), Jabalpur, India, 2018, indexed in Springer.

Best Paper - ICCIC	Awarded the Best Paper in the corresponding track for the paper: A. Agarwal and N. R. Nanavati, "Association rule mining using hybrid GA-PSO for multi objective optimisation," in International Conference on Computational Intelligence and Computing Research (ICCIC), Chennai, India, IEEE, dec 2016, pp. 241-247, indexed at IEEE Xplore.

Delivered Expert Talks at

Jan - 2024	Delivered Expert Talk on "AI Trends and Explainable AI" at a one day workshop on "Explainable AI with Generative AI Tools and Techniques" organized by SRKI, Surat
Dec - 2023	Delivered Expert Talk on "Introduction to Explainable AI" at a one week IEEE SPS Seasonal School on "Explainable AI for signal and Image Processing" organized by PCCoE, Pune
Jan - 2021	Conducted Hands on Session on "Simple Linear Regression Model Building, Multiple Linear Regression Model Building" at GUJCOST workshop on "Insights into Data Science and its Applications" organized by SCET, Surat
Dec - 2020	Delivered Expert Talk on "AI – Birdie: A Case Study of Deep Learning Based Application" at a one week STTP on Artificial Intelligence for Signal Processing Applications organized by SCET, Surat
Dec - 2020	Delivered Expert Talk on "Privacy in Data" at STTP on Cyber SEcurity and Block Chain Technologies organized by VVPEC, Rajkot
Nov - 2020	Delivered Expert Talk on "AI – Birdie: Case Study of Deep Learning Based Application" at 2 day workshop on Deep Learning:Recent Trends and Applications organized by SNPIT, Bardoli
June - 2020	Conducted Webinar on "Understanding the Fundamentals of Machine Learning" organized by SSASIT
Jan - 2019	Delivered Expert Talk on "Machine Learning Basics in Intelligent techniques in Electrical Engg" at STTP in SCET, Surat
Sept - 2018	Delivered Expert Talk on "Exploring Deep Learning using Tensorflow" at GUJCOST – DST sponsored 2 Days workshop on "Recent Advancements and Applications of Deep Learning" at SCET, Surat.
Mar - 2017	Talk on "Advances in Clustering algorithms for Big Data Analytics" at five day TEQIP II Sponsored STTP on Recent Trends in Big Data Analytics (RTBDA-2017) at SVNIT, Surat
Feb - 2017	Talk on "Application of Game Theory in Security" at one day State Level Seminar on Game Theory and its Applications at Vadodara Institute of Engineering, Kotambi
Dec - 2016	Talk on "Map-Reduce Detailed for Big Data" at five day QIP STC on Advances in Big Data Analytics at SVNIT, Surat
Dec - 2016	Talk on "Frequent Itemset Mining and Clustering algorithms for Big Data Analytics" at five day QIP STC on Advances in Big Data Analytics at SVNIT, Surat
June - 2016	Talk on "Understanding the Map-Reduce Paradigm" at TEQIP II sponsored five day STTP on Big Data Analytics at SVNIT, Surat

June - 2016	Talk on "Clustering Algorithms for Big Data Analytics" at TEQIP II sponsored five day STTP on Big Data Analytics at SVNIT, Surat
Dec - 2015	Talk on "Privacy Preserving Schemes for Distributed Data Mining" at Intelligent Computing - Algorithm and Applications : ICAA15 at MIT, Pune
June - 2015	Talk on "A Game Theoretic Approach in Privacy Preserving Distributed Data Mining" at TEQIP II sponsored five day STTP on Privacy Preserving Data Mining at SVNIT, Surat
June - 2015	Talk on "Proposed Information Theoretically Secure Approaches in Privacy Preserving Frequent Itemset Mining" at TEQIP II sponsored five day STTP on Privacy Preserving Data Mining at SVNIT, Surat

Reviewer for

Conference/s	IEEE,ACM
Conference/s	International Conference of Information Systems Security(ICISS)(Springer LNCS)
Conference/s	Technical Program Committee Member, Special Session Indiacom 2023
Conference/s	Second International Conference on Security, Privacy and Data Analytics (ISPDA) (Springer)
Conference/s	International Conference on Computational Intelligence: Theories, Applications and Future Directions (ICCI)(Springer, CSIR, IEEE)
Journal/s	International Journal for Distributed Systems and Technologies, IGI Global (dblp Indexed)
Journal/s	Security and Communication Networks, Wiley Online Library (SCI Indexed)
Journal/s	Concurrency and Computation: Practice and Experience, Wiley Online Library

PhD Students' Topics guiding

2018 onwards	"Enhancing efficiency of Deep Neural Networks using hardware driven activation functions with stochastic computing"
2019 onwards	"Prediction of User Behaviour in Online Social Networks"
2019 onwards	"Improving the accuracy and efficiency of machine learning algorithms for diagnosis of neuro-developmental disorders"

Projects/Dissertations Guided

2023	Open Ended Problem on "Circular Economy"
2023	Open Ended Problem on "Digital Smile Design using Generative AI"
2021	M.E. Dissertation on "IVF Prediction using Embryo Images and Textual Data"
2020	B.E. Project on "Medical Image Translation"
2020	M.E. Dissertation on "Optimizing IVF Predictions and Procedure for Better Outcomes"
2019	B.E. Project on "AI - Birdie: Leveraging Ornithology"
2019	B.E. Project on "Hearify: Dynamic Volume Control based on surrounding noise"

2018	M.E. Dissertation on "An approach for sentiment analysis on Gujarati tweets"
2018	B.E. Project on "Lets Roam - A personalized travel planner"
2018	B.E. Project on "Digital Salesman - A targeted marketing approach"
2017	M.E. Dissertation on "A Hybrid Approach for Privacy Preserving Data Publishing"
2017	B.E. Project on "Co-Segmentation using Deep Learning"
2016	B.E. Project on "Privacy Preservation in Data Mining"
2016	B.E. Project on "Music Recommendation System for Big Data Analytics"

Organized Expert Talks/ Workshops/Events

Aug - 2022	Organizing Chair of IEEE Multimedia Signal Processing Cup 2022.
Mar - 2021	On the Organizing team of IEEE NetSIP Event on 19-21 March.
Jan - 2021	Organised the GUJCOST sponsored 2 Days workshop on "Insights into Data Science and its Applications" on 9-10 Jan.
Nov - 2019	AICTE Sponsored STTP on Deep Learning, Machine Learning and Pattern Recognition at SCET Surat
Feb - 2019	Finance Chair for NetSip 2019 - Gujarat Section at SCET Surat
Sept - 2018	Workshop on "Recent Developments and Applications of Deep Learning" at SCET, Surat
Mar - 2018	Talk on "Insights into Learning with a focus on Natural Language Processing " by Mr. Kevin Patel - IIT Mumbai at SCET, Surat

Course/Workshops/Conferences Attended

Mar - 2021	Attended the NetSIP National Seminar conducted by IEEE Gujarat Section
Dec - 2020	Completed 12 Week NPTEL course on "An Introduction to Artificial Intelligence" by Prof. Mausam, IIT Delhi
Dec - 2020	Two Days Online Seminar on "National Seminar on Artificial Intelligence for Digital Transformation: A Step towards Digital India", Nirma University, Ahmedabad
Nov - 2020	Five Days Online FDP on "AI for Healthcare", SCET, Surat
Jul - 2020	Five Days Online Workshop on "Advanced Deep Learning" by LeadingIndia, Bennett University
Jul - 2020	Five Days Online Workshop on "BCI and NeuroTechnology" by g.tec Medical Engineering
Jan - Apr 2020	Twelve week course on "Introduction to Artificial Intelligence" by NPTEL
Mar - 2018	One Day Workshop on "Introduction to Neural Network and Deep Learning" at SCET, Surat
Nov - 2017	ISTE approved two week FDP on Innovation and Entrepreneurship - From Design Thinking to Funding at SCET, Surat
June - 2017	MeitY sponsored one week STTP on Internet of Things and its Applications(IoTA 2017) at SVNIT, Surat

Feb - 2017	One day State Level Seminar on Game Theory and its Applications at Vadodara Institute of Engineering, Kotambi
July - 2015	TEQIP II sponsored one week STTP on Big Data and Advanced Video Compression at SVNIT, Surat
June - 2015	TEQIP II sponsored five day STTP on Privacy Preserving Data Mining at SVNIT, Surat
Apr - 2015	TEQIP II sponsored Finishing School on Creating Effective Poster from Project/Paper/Research at SVNIT, Surat
Mar - 2014	TEQIP II and ISEA Sponsered STTP on Cloud Computing at SVNIT, Surat
July - 2013	TEQIP II Sponsered Five Day STTP on Wireless Sensor Networks: Secure Data Aggregation and Related Issues at SVNIT, Surat
May - 2013	TEQIP II Sponsered Five Day STTP on Wireless Sensor Networks: Application and Security Issues (WSNASI 2013) at SVNIT, Surat
Jan - 2011	ISEAP Sponsored Two Day Seminar on Wireless Sensor Networks: Security Issues and Applications at SVNIT, Surat
Dec - 2010	ISTE Workshop on Database Management Systems conducted by IIT Mumbai
Dec - 2010	Sixth International Conference on Information Systems Security (ICISS 2010) at DA-IICT, Gandhinagar
Feb - 2010	AICTE Sponsered STTP on Data Mining: Techniques and Applications at SVNIT, Surat
Jan - 2010	AICTE Sponsered STTP on Analysis and Design of Algorithms at SVNIT, Surat
Dec - 2009	ISTE Workshop on Effective teaching/ learning of Computer Programming conducted by IIT Mumbai

Outreach

DAPCOM	Convenor, Special Session, International Conference on Data Acquisition, Processing and Communication (DAPCOM) 2024
Udayan Shalini	Mentor, Udayan Shalini Fellowship Program (2023 - present)
	Coordinator, Special Session, International Conference on Data Acquisition, Processing and Communication (DAPCOM) 2024
IEEE SPS	IEEE Member and IEEE Digital Content Chair (SPS Gujarat Section (2020-2023))
IEEE SPS	IEEE Member and IEEE Member-at-large (SPS Gujarat Section (2018-21))
Collaborations	Collaborations with IIT Mandi for final year student projects and IIT Mumbai for student internship
Organized Special Session	Organized Special Sessions for Springer Indexed Conferences IC4S 2019 and IC4S 2020
Research Proposal	Submitted a research proposal based on "Detection of neurological disorders using deep learning based models" to AICTE in Dec 2020
WIA	Contributor at Women In Action

Karma Kitchen	Volunteer at Karma Kitchen, Service Space
Udyan Shalini Fellowship	Mentor to 2 Shalinis

Industrial Training Attended

May - 2022	Attended a 15 day training at Blue Data Consulting, Surat

Additional Interests

- Reading
- Cooking
- Swimming
- Languages: English, Hindi, Gujarati, French

- Running
- Cycling
- Writing
- Badminton