Dr. Sonali D. Patil
Professor and Head, Information Technology Department, PCCOE

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Ph.D. (Comp Engg), M.E. (Comp Engg), B.E. (Comp Science & Engg)

Research Interest: Secret Sharing, Information Security, Blockchain Technology, Cryptography, Cyber Security

Summary:

An academician with more than 17 years of teaching experience in the field of Computer Engineering. Pro-actively involved in all activities of Department and Institute.

Academic Qualifications :

- **Ph.D.** in Computer Engineering from Amravati University **[Year 2011-2015]**
- **M.E.** in Computer Engineering from Pune University **[Year 2006-2008]**
- **B.E.** in Computer Engineering from North Maharashtra University **[Year 1999-2003]**

Research Contributions:

Patents:
- **International Patent** - Application Number: PCT/IN2016/000128/693, Title: Device Detection System. **Status: Published,** Publication Number: WO/2017/168430, Publication Date: 5/10/2017.
- **Indian Patent -** Application Number: 4140/MUM/2015, Title: Implementation of Secure Bank Locker System Using Secure Secret Sharing Scheme and FPGA. **Status: Published.**

Publications:
- **More than 70** research papers are presented and published in reputed International Conferences and Journals with good **Google Citation Index** and **Scopus Citation Index**.

Copyrights:
- Diary Number: 11705/2015-CO/L, Copyright Reg. of: Literary, **Status: Granted**.
- Diary Number: 3723/2019-CO/L, Copyright Reg. of: Literary

Chair, Reviewer and Awards:
- **General Chair** for Third **IEEE** International Conference ICCUBEA 2017 (17th-18th Aug 2017).
- **Editor** of **International Journal:** International Journal of Computer Sciences and Application (IJCSA), ISSN: 0974-0767 for year 2010 and 2011.
- **Editorial Board Member** of **International Journal** "Amity Journal of Computational Sciences" (AJCS) ISSN: 2456-6616.
- Organizing committee member of **National Conference** on Advancements in Information Technology and Internet Security (AITIS-2008) held on 4th and 5th January 2008.
- **Convener** of PG Information Technology Conference **iPGCON 2020** organized in association with Board of Studies (BoS), SPPU.
- **Track Chair and Session Chair** for various International/National Conferences.
- **Reviewer** for various International Conferences/Journals.
- Received **Women Researcher Award** by Science Father (SF) organization who works on Science, Health and Engineering.

Research Fund/Revenue Generation:
- Co-investigator for the research proposal "Developments of Parallel Algorithm for Image Enhancements and Segmentation" **sanctioned (for INR 3,00,000/-) by BCUD Pune** University for year 2007-2008 and 2008-2009.
- Course Coordinator for **20 days ACM India Summer School** on "Programming Languages-Theory and Practice" from 4th 24th June 2018 organized by **ACM India** with revenue generation INR **2,10,00/**

43,000/-
- Conducted 2 days **workshop** on "Blockchain Technologies", with revenue generation **INR 20,000/-**
- **Modrob proposal** "Desktop Virtualization through VMware -VDI (Virtualization Desktop Interface)" submitted to AICTE.
- **STTP proposal** Faculty development programme on "Image processing and Data Analysis in medical Health domain" submitted to AICTE.
- Local Coordinator for **5 days FDP** on "Cyber Security" from 8th April - 13th April 2019 organized by Shivaji University, Kolhapur sponsored by Pandit Madan Mohan Malaviya Na-tional Mission on Teachers and Teaching **(PMMMNMTT).**
- Course Coordinator for **5 days PCI Programming Intensive Camp** on "De-Struc-ing Structures" from 25th March - 29th March 2019 sponsored by Persistent Pune.

Other Contributions:
- Recognized **Ph.D. Research Supervisor** at SPPU
- **Evaluator** for **PhD Thesis**.
- Examiner for ME Dissertation.
- **SPOC** of PCCOE **NPTEL Chapter**
- **Member- ACM Pune Professional Chapter.**
- **Reviewer for all levels for state level** SPPU **Avishkar 2020** Research Competition.
- Chairman, Paper Setter for theory and Online Examination at SPPU, Pune.
- **Coordinator for National Cyber Defense Resource Centre** at National Cyber Safety and Security Standards (**NCSSS**).
- **Coordinator of PCCoE Tedx** Conference for the year 2017-18 and 2018-19.
- **Sponsor – Codechef PCCoE Student Chapter**

Certifications:
COURSERA: Blockchain Basics, Blockchain: Foundations and use cases, Blockchain 360: A State of Art for Professionals, Introduction to Blockchain: Benefits, Values and Opportunities, Introduction to Blockchain: Evolution and Technology Concept, Blockchain Platforms, The Blockchain
NPTEL: Blockchain and its Applications.

Expert Talks Delivered:
- Delivered an expert talk on topic "SIG : way to research and future opportunities" on 26th Aug 2020, organized by VIIT, Pune.
- Delivered an expert talk "Cyber Crimes, Ciber Laws and Investigation", on 12th May 2020, organized by EnTC Dept, PCCoE.
- Delivered an expert talk for Webinar on topic "Demystifying Blockchain" on 1st May 2020, organized by Bharati Vidyapeeth.
- Delivered an expert talk (FB-live) on topic "Demystifying Blockchain" on 27th April 2020, organized by PCET.
- Delivered an expert talk on topic "Blockchain Technology" on 5th June 2020, in 10 days National Level Boot camp, organized by PCCOE in association with IEEE Computer Society and IEEE Pune Section.
- Invited for Panel Discussion on **"Women in Computing",** organized by **Persistent** on 3rd June 2019 at Persistent Systems Pune.
- Delivered an expert talk on topic "Blockchain Technology" on 2nd June 2020, organized by Lila Poonawala foundation.
- Invited as **Guest of Honor** and delivered an Expert Talk in **National Conference** on "Recent Advances in Engineering Sciences", on 27th March 2019 at Bharati Vidyapeeth College of Engineering, Pune.
- Delivered an expert talk on "Cyber Security", on 20th November 2018, organized by MBA Department, Pimpri Chinchwad College of Engineering, Pune.
- Delivered an expert talk on "Cryptography Algorithms" in 2 days workshop on "Cyber Forensics and Ethical Hacking", on 27th and 28th August 2018, organized by Pimpri Chinchwad College of Engineering, Pune.
- Delivered an expert talk on "Cryptography Algorithms" in 2 days workshop on "Cyber Forensics and Ethical Hacking", on 28th and 29th July 2018, organized by Pimpri Chinchwad College of Engineering,

Pune.
- Delivered an expert talk on "How to Put Results in Research Paper and Report", on 27th October 2017, organized by PG EnTC department, Pimpri Chinchwad College of Engineering, Pune.
- Delivered an expert talk on "Advanced Data Structures" organized by Department of Computer Engg., RMD Sinhgad College of Engineering, Pune on 23rd Feb 2017.
- Delivered an expert talk on "Optimization Algorithms" in **6 days STTP** on Optimization Research in Machine Learning in the week (16th – 21st), January 2017, organized by Computer Engg. Dept, Pimpri Chinchwad College of Engineering, Pune.
- Delivered an expert talk on "MAC protocols in WSN" in a (TEQIP- **6 days STTP** on Wireless Sensor Networks & Applications in the 3rd week (19th – 24th), December 2016, organized by Computer Engg. Dept**, BVM Engineering College, Vallabh Vidyanagar, Anand, Gujarat.**
- Conducted a Two Day's workshop on "QT Creator" organized by MIT Academy of Engineering, Alandi, Pune on 5th and 6th Jan 2016.
- Coordinator of one week FDP on "Design and Analysis of Algorithms", organized at PCCOE in association with BOS Computer Engineering, SPPU, held during 8th to 12th June 2015.
- Conducted one day workshop on "Mathematical Modeling and QT Creator" organized by AISSM's IOIT, Pune on 17th January 2015.
- Delivered an expert talk on "Recent Trends in Computer Networking (RTCN)- Secret Sharing" in STTP (TEQIP sponsored) organized by Government College of Engineering, Jalgaon during 3rd Dec. 2012 to 8th Dec. 2012.
- Delivered an expert talk on "Visual Cryptography" in one week FDP on "Research Trends in Computer Engineering", at PCCOE on 3rd to 7th November 2015.

EXPERIENCE:

Institute	Designation	Duration
Pimpri Chinchwad College of Engineering, PUNE	Professor, Head - IT	August 2019 to till date
Pimpri Chinchwad College of Engineering, PUNE	Associate Professor	July 2016- July 2019
Pimpri Chinchwad College of Engineering, PUNE	Assistant Professor	June 2012 to June 2016
Sinhgad Institute of Business Administration, Pune	Assistant Professor	July 2006 to May 2012
Government College of Engineering, Jalgaon	Lecturer	Oct 2003 to July 2006

PERSONAL PROFILE:
- Date of Birth : 10-October-1981
- Member   : ACM, IEEE, IEANG
- Achievements: Middle-level high school scholarship, Maharashtra Talent Search (**MTS**) scholarship, **N.C.C. 'B'** Certificate holder, Participated and winner of various sport events.

Sonali P.

Dr. Sonali D. Patil
Name and Signature

List of Publications:

Sonali Patil, Rahul Agarwal, Saburi Ashtekar, Muskan Dolwani, Snehal Nagare, "Analyzing need of Secure Forensic Report System using Blockchain", International Research Journal of Engineering and Technology (IRJET), PP 544-547,2020.

Tanuja Patankar, Sonali Patil, Abhijeet Gurle, "Tomato crop disease detection and Pest Management TEST Engineering and management", PP 6916-6922, 2020.

Sonali Patil, Harshada D Mane, Priyanka Manke, Chaitrali Landge, "A Survey of Automatic Music Composition from Lyrics using Artificial Intelligence", International Journal of Advanced Science and Technology, PP 2619-2629, 2020.

Sonali Patil, Sarika Kadam, "Optimized Blockchain Network for Securing Digital Evidences of Forensic Laboratories", International Journal of Advanced Science and Technology, PP 2630-2634, 2020.

Sonali Patil, Sarika Kadam, "Transparency in Agriculture Crop Pricing Using Blockchain", International Journal of Advanced Science and Technology, PP 2635-2541, 2020.

Patil Sonali, "Wireless Sensor Based Smart and Efficient Personal Car Assistant System", Journal of Applied Science and Computations, PP 2235-2239, 2019.

Priyanka Ajetrao, Sonali Patil, "Enhancing Security of Biometric Template in Multimodal Authentication Systems", Journal of Emerging Technologies and Innovative Research (JETIR), PP 767-769,2019

Patil Sonali, Pisal Jija, Patil Aishwarya, Ingavale, Siddhi, Ayarekar, Prajakta, Mulla, Mrs. Shagupta, "A Real Time Solution to Flood Monitoring System using IoT and Wireless Sensor Networks", International Research Journal of Engineering and Technology, 2019.

Kamble Priyanka R, Patil Sonali, "Exploring secret image sharing with embedding of shares", 2018 2nd International Conference on Inventive Systems and Control (ICISC), 1090-1093, 2018.

Patil Sonali D, Ithape Priya K, "Verifiable Image Secret Sharing with Cheater Identification", 2018, Second International Conference on Inventive Communication and Computational Technologies (ICICCT), PP 1238-1241, 2018.

Kamble Priyanka R, Patil Sonali, "Enhancing security of electronic patient record with tamper detection",2018 3rd International Conference for Convergence in Technology (I2CT), PP 767-769 , 2018.

Kamble Priyanka, Patil Sonali, "Medical Image Security with Cheater Identification, 2018 Fourth International Conference on Computing Communication Control and Automation (ICCUBEA), PP 1-6, 2018.

Kajal RK Pandey, Ketan Arwat, Ishaan Sharma, Sonali Patil, "Improvement and Enhancement in Emergency Medical Services use IOT", 2018.

Nehal Markandeya, Sonali Patil, "Image Compression Using Huffman Coding", International Journal Of Engineering And Computer Science, PP 19999-20002, 2017.

Sonali Patil, Kapil Tajane, " Delegation of Authority in Organizations with Hierarchical Secret Sharing", International Journal of Control Theory and Applications, PP 949-955, 2017.

Sonali Patil, Kapil Tajane, "Secure and Privacy Protected Bank Locker System Using RFID and Biometrics", International Journal of Control Theory and Applications, PP 957-965, 2017.

Sonali Patil, Priya Potnis, "Comparative Study of Cryptography and Secret Sharing", International Journal of Control Theory and Applications, PP 559-565, 2017.

Sonali Patil, Shweta Lokhande, Trishala Kamble and Priyanka Dhumal, "Enhancing Security of Vocal Communication Over Open Network Using Multipath Routing", International Journal of Control Theory and Applications, PP 567-571, 2017.

Patil Sonali D, "Efficient Image Secret Sharing Using Parallel Processing for Row-Wise Encoding and Decoding", International Conference on Intelligent Computing and Applications, PP 207-214, 2017.

Patil Rupali S, Patil Sonali D, Thepade Sudeep D, "Performance Evaluation of Fingerprint Trait Authentication System", International Conference on Intelligent Computing and Applications, PP 143-151, 2017.

Markandeya Nehal, Patil Sonali, "Digital image compression hybrid technique based on block truncation coding and discrete cosine transform", 2017 International Conference on Trends in Electronics and Informatics (ICEI), PP 1159-1162, 2017.

Patil Sonali, Dhumal Priyanka, Lokhande Shweta, Kamble Trishala, "Design and implementation of secure biometric based authentication system using RFID and secret sharing", Convergence in Technology (I2CT), 2017 2nd International Conference, PP 480-482, 2017.

Markandeya Nehal, Patil Sonali, "Improve Information Rate in Thien and Lin's Image Secret Sharing Scheme Using Huffman Coding Technique", 2017 International Conference on Computing, Communication, Control and Automation (ICCUBEA), PP 1-5, 2017.

Kakade Rutuja, Kasar Nikita, Kulkarni Shruti, Kumbalpuri Shubham, Patil Sonali, "Image Steganography and Data hiding in QR Code, International Research Journal of Engineering and Technology, PP 2926 – 2928, 2017.

Patil Sonali, Jangra Ankur, Bhale Mandar, Raina Akshay, Kulkarni Pratik, " Ethical hacking: The need for cyber security", 2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI), PP 1602-1606, 2017.

Markandeya Nehal, Patil Sonali, "Optimizing Information Rate in Polynomial Based Image Secret Sharing Scheme Using Huffman Coding" International Journal Of Engineering And Computer Science, 2017.

Chaudhari Kiran R, Patil Sonali, "Secure and reliable transmission of chemical molecule structure using QR code and secret sharing", 2016 International Conference on Computing Communication Control and automation (ICCUBEA), 2016.

Vyavahare Seema, Patil Sonali, "Analysing secret sharing schemes for audio sharing, Int J Comput Appl, PP 39-42, 2016.

Chaudhari Kiran R, Patil Sonali, "Securing Barcodes Using Compressed Secret Sharing Scheme", International Journal of Computer Applications, PP 8887, 2016.

Patil Sonali, Deshmukh PR, Chavan Tejal, Sangwan Priyanka, Shastri Vinay, Sunthwal Akash, "Reduced share size audio secret sharing", International Conference on Pervasive Computing (ICPC), 2015.

Patil Sonali, Bhagat Komal, Bhosale Susmita, Deshmukh Madhura, "Intensification of security in 2-factor biometric authentication system", International Conference on Pervasive Computing (ICPC), 2015.

Suvarna Thube, Sonali Patil, "Analyzing Extended Secret Sharing Schemes based on Share Size", International Journal of Computer Applications, PP 40-44, 2015.

Patil Sonali, Tajane Kapil, Sirdeshpande Janhavi, "Enhancing security and privacy in biometrics based authentication system using multiple secret sharing", 2015 International Conference on Computing Communication Control and Automation, PP 190-194, 2015.

Tajane Kapil, Patil Sonali, Pitale Rahul, Tajane Mayur, "Enhancing Security of Banking Locker System Using Secret Sharing Scheme Based on Random Grids", Emerging Research in Computing, Information, Communication and Applications, PP 175-181, 2015.

Patil Rupali S, Patil Sonali, Thepade Sudeep D, "Secret Sharing based Secure Authentication System:, International Journal of Computer Applications, PP 8887, 2015.

Patil Sonali, Deshmukh Prashant, "Verifiable image secret sharing in matrix projection using watermarking
Circuits, Systems", Communication and Information Technology Applications (CSCITA), 2014 International Conference, PP 225-229, 2014.

Janhavi Sirdeshpande, Sonali Patil, "Amended Biometric Authentication using Secret Sharing", International Journal of Computer Applications, PP 28-32, 2014.

Patil Sonali, Deshmukh Prashant, "Image secret sharing with identification of cheaters",2014 International Conference on Advances in Engineering & Technology Research (ICAETR-2014), 2014.

Sonali Patil, Prashant Deshmukh, "Secret Sharing Using Linearly Independent Vectors with Augmented Proactive Capabilities, ICRTET'2014, PP 71-76, 2014.

Sonali Patil, Prashant Deshmukh, "A (t, n) threshold Gray Image Secret Sharing with Verification"
3rd International Conference on "Recent Trends in Engineering & Technology", 2014.

Patil Sonali, Deshmukh Prashant, "Enhancing security in secret sharing with embedding of shares in cover images", International Journal of Advanced Research in Computer and Communication Engineering,   PP 2278-1021, 2014.

Patil Sonali, Deshmukh Prashant, "General Access Structure Secret Sharing in Matrix Projection", International Journal of Computer Applications, 2014.

Patil Sonali, Deshmukh Prashant, "A Proactive Secret Sharing in Dot Product of Linearly Independent Vectors", Proc. of Int. Conf. on Recent Trends in Information, Telecommunication and Computing, ITC, 2014.

Patil Sonali, Chavan Tejal, Sangwan Priyanka, Shastri Vinay, Sunthwal Akash, "Contemplating Audio Secret Sharing Schemes", 2014.

Patil Sonali, "Secure and Verifiable (2, 2) Secret Sharing Scheme for Binary Images", International Journal of Computer Science Issues, PP 290-293, 2013.

Sonali Patil, Kapil Tajane, Janhavi Sirdeshpande, "Analyzing Secure Image Secret Sharing Schemes Based On Steganography", International journal of Computer Engineering & Technology (IJCET), PP 172 – 178, 2013.

Rajasree RS, Patil Sonali, "Fair Contract Signing Protocol Based On Secret Sharing", International Journal of Engineering Research and Applications (IJERA), PP 66-69, 2013.

Patil Sonali, Tajane Kapil, Janhavi Sirdeshpande, "Secret Sharing Schemes For Secure Biometric Authentication", International Journal of Scientific & Engineering Research, PP 2890-2895, 2013.

Patil Sonali, Rana Nikita, Patel Dhara, Hodge Prajol, "Extended Proactive Secret Sharing using Matrix Projection Method, International Journal of Scientific & Engineering Research, PP 2024, 2013.

Patil Sonali, Deshmukh Prashant, "A Novel (t, n) Threshold Secret Sharing Using Dot Product of Linearly Independent Vectors", International Journal of Advanced Research in Computer and Communication Engineering (IJARCCE), 2013.

Patil Sonali, Rana Nikita, Patel Dhara, Hodge Prajol, "Revisiting Proactive Secret Sharing Based On Shamir's Scheme", International Journal of Advances in Engineering & Technology, PP 987, 2013.

Patil Sonali, Tajane Kapil, Sirdeshpande Janhavi, "An Explication Of Secret Sharing Schemes With General Access Structure", International Journal of Advances in Engineering & Technology, PP 883, 2013.

Patil Sonali, Deshmukh Prashant, "Analyzing Relation in Application Semantics and Extended Capabilities for Secret Sharing Schemes", IJCSI, 2012.

Patil Sonali, Rana Nikita, Patel Dhara, Hodge Prajol, "Analyzing Proactive Secret Sharing Schemes", International Journal Of Next Generation Computer Applications, PP 22-25, 2012.

Patil Sonali, Tajane Kapil, Sirdeshpande Janhavi, "General Access Structure For Modulo-2 Secret Sharing Scheme", International Journal of Engineering Research & Technology, 2012.

Patil Sonali, Deshmukh Prashant, "An Explication of Multifarious Secret Sharing Schemes", International Journal of Computer Applications, 2012.
Gopal Arpita, Nikam Amresh, Patil Sonali, "Development of Parallel Algorithm for Image Enhancements and Segmentation", IJCSA, 2011.
Nikam Amresh, Vijay Kapade, Poonam Dhanraj, Patil Sonali Madhukar, "Reliable Phylogenetic Tree Based (N, N) Secret Sharing Scheme", IJCSA,2011.
Kazi Iffat, Patil Sonali, "Robust Biometric Person Identification Using Automatic Classifier Fusion Of Speech, Mouth, Face Experts", Proceedings of the 2nd National Conference on Emerging Trends in Information Technology (eIT-2007), 2011.
Nikam Amresh, Kapade Poonam, Patil Sonali, "Audio Cryptography: A (2, 2) Secret Sharing for Wave File", IJCSA, 2010.
Gopal Arpita, Patil Sonali, Nikam Amresh, "A parallel algorithm for outline capturing system for object recognition", 2010 IEEE 2nd International Advance Computing Conference (IACC), PP 21-24, 2010.
Amresh Nikam, Sonali Patil, "Phylogenetic Tree based (n, n) Secret Sharing Scheme", IJCSA, 2010.
Gopal Arpita, Patil Sonali, Nikam Amresh, "A Parallel Algorithm for Image Edge Detection using Difference Chain Encoding", International Journal of Computer Science and Application, PP 113-13, 2010.
Sonali Patil, Arpita Gopal, Amresh Nikam, Madhuri Potey, "Security Enhancement by reliable secret sharing and embedding using BPCS", International Conference on Computer Networks and Security (ICCNS-2008), PP 119-123, 2008.
Patil Sonali, "Qualitative Parametric Analysis of Load Balancing Algorithms In Distributed Computing Environment", National Conference on Advancements in Information Technology and Internet Security (AITIS-2008), PP 43-47, 2008.
Sonali Patil, Amresh Nikam, "A Less Complex (n, n) Scheme for Sharing Secret Color Images", International Conference on Managing Next Generation Software Application, (MNGSA-2008), 2008.
Sonali Patil, Amresh Nikam, "A Combine Approach for Skin Color Based Hand Gesture Extraction", International Conference on Advanced Computing Technologies (ICACT '2008), 2008.