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SUMMARY

Textile and Polymer Science professional with 16 years of experience in Innovation, IP Generation, New Product development, Product Architecture, Project Management, Production & Manufacturing Plant Setup.

On hands experience with textile and polymeric based industrial products in Filtration, Belting, Personal Protection, Ballistic and Composites applications.

Unique skillset of working with multidisciplinary technologies for like IoT, Flexible Sensors, Embedded systems, Firmware, Algorithms for disruptive product and solution development.

TECHNICAL SKILLS

Polymers – Physics, Chemistry, Spinning of Fibre forming polymer
Textile – Spinning, Weaving, Finishing of Industrial fabrics
Clothing – Cut & Sew, CLO Apparel Design, Seamless garments, Flexible sensors
Product Design – 3D Modelling in Solid edge, NX and 3d Printing
Hardware: - Embedded hardware design using KiCad
Firmware – Firmware for ARM architecture microcontroller in C, C++ using Zephyr OS
Software – Web Android, iOS & Windows using Flutter, Python
Web & Cloud – AWS, Firebase, NextCloud, Wordpress, Magento, JS, WooCommerce
AI – Prompt Engineering, AI agent creation, AI Automation, Code

INTELLECTUAL PROPERTY

EP3559623B1, US11378484B2 - End of service life determination for personal protective equipment
US10638801B2 – Body gripping harness and single point connector for electrical rubber insulating sleeves
IN397448 – Waterproof thermal liner for protective clothing (Self)
IN390180, IN404951 - Ribbed thermal resistant fabric for flame and electrical arc protection (Self)
IN407090 - Ghost net detection system (Self)
IN409485 - Modular clothing medical device (Self)
IN427408 – Light-weight flame resistant fabric
IN474153 - A protective garment and process of making the same
IN577236 - Wash Abuse Detection in Clothing
Patent Pending - Innovative Arc Protection Device

PROFESSIONAL EXPERIENCE

R&D, Innovation, KAMLATECH	Technical Textile	Since May – 2017
<u>Protective Textile: (Client: Tarasafe International, Tata Power)</u>		
- Developed next generation Arc-flash protection shield. - Developed test bench for Arc-flash rating estimation. - Developed textile & LED based visibility solution. - Developed multiple flame protective fabrics (patented) with significantly improved thermal protective performance. Fabric with active sense and response technology - Developed innovative flame protective labelling technology - Developed multiple thermal liners with improved comfort (patented/patent pending) - Developed protective clothing healing technology - Developed sustainability roadmap, sustainable flame protective fabric options and devised Product Sustainability Index Tool for quantitative analysis of products. - Conceptualization and development of end of service life for fire retardant clothing. (patented) - Developed Abuse Detection Technology for flame and thermal protective clothing. - Design and Development of breathable, electrical insulating clothing for 1KV transmission system.		
<u>Medical Textile: (Client: Tarasafe International, Keoo Life, Manohar Filaments)</u>		
- Design & Development of face mask with improved air circulation using a powered airflow unit. - Development and EU certification of FFP 2 facemask.		

- Co-Development FFP2 face mask with natural antimicrobial and antiviral functionality. (patented)
- High Temperature Textiles: (Client: MRT, SuperFab)
- Technology development for manufacturing of high temperature resistant textiles.
 - Product life and performance improvement of high temperature air filtration textiles
- Smart Clothing & IOT: (Client: Arvind Limited, Honeywell, IIT-Delhi, WRA)
- Market research and new product development in smart clothing segment with physiological data sensing capability for medical and fitness use (patented) and luminous fabric (patent pending).
 - Embedded device, firmware and cloud architecture for integration in smart clothing application.
 - Developed Open-Source tools for textile application – <https://tool.kamlatech.in>
 - Developed flutter interface application for Keiser M series bikes (USA)
- Machine Design: (Client: Tarasafe International)
- Textile recycling machine designing for small scale operation.
 - IOT based research instrument for thermal performance of fabric.
 - Pseudo Arc Tester
- Digital Marketing & E-com: (MRT, Self)
- Brand improvement and awareness
 - Technical content creation
 - Data collection tools and database development
 - E-commerce project execution – <https://store.kamlatech.in/>

Project Management, HONEYWELL Protective Clothing Dec – 2014 to April – 2017

- Setting up Textile & Apparel Global CoE for Textile based PPE – Lab scale manufacturing and Testing facility for PPE.
- Project management for NPI with global team (phase gate methodology) – Fire retardant Life Guard Hood, patented anti-cancer hoods for US Fire Fighters
- Technical lead for product development of Arc-Protection rainwear, Face mask, Protective coverall and Electrical field sensing jacket
- Managing NFPA and CE certification compliance of PPE for US and Europe market
- 3 Patents on Electrical safety PPE (2 US patent, 1 PCT patent)
- POCs for intelligent textile wearables, with sensing, cooling, sizing, end of life of PPE
- Design of automated workflow for engineering activity on Textile PPE

Production, ARVIND LIMITED Industrial Fabrics Nov – 2012 to Dec - 2014

- Improvement in weaving production efficiency for Filtration and other technical fabric by 10%
- Process development & optimization for Mono-filament belting fabric production
- Evaluation, Installation and Modification of Dornier 2nd hand looms to suit technical fabric production
- Design & Development of online geo-grid production system

Scientist, NIRJAFT Natural Fibres Sep – 2011 to Nov - 2012

- Development of PLA-Cotton blended yarn
- Successful completion of capacity building program for R&D at NAARM, Hyderabad

Project Management., ARVIND Industrial Fabrics Sep – 2009 to Sep – 2011

- ERP structuring and implementation.
- Customer technical support.
- ISO 9001 implementation and compliance.
- Project report preparation for Technical Textile Business.
- Machine selection and plant setup of Advanced Material Division at Arvind Limited
- Development of inherent and treated FR fabrics
- Development of industrial filtration fabrics product line
- Development of anti-ballistic fabrics, glass fibre-based fabrics, FR fabrics for Indian Railway

Trainee, GARDEN SILK MILLS

PET Spinning

Jun – 2009 to Sep – 2009

- Understanding the process flow of PET Continuous Polymerization plant
- Setting up parameters for POY and FDY yarns spinning on TMT and Barmag machines

EDUCATION

M. Tech Fiber Sci. & Tech.

IIT Delhi

July – 2007 to May – 2009

- Awarded gold medal for excellent academic performance with CGPA of 9.90
- Secured AIR 20 & 150 in GATE and CEED respectively conducted by Indian Institute of Technology
- Development of sustainable composites using single polymer (PP)
- Lead role in organizing International Conference of Technical Textile & Non-woven 2009 at IIT Delhi

B. Tech Textile Technology

M.S. University of Baroda

Nov - 2003 to May - 2007

- Awarded 2 gold medals for excellent performance in subject of weaving and overall aggregate of 68%
- Awarded with Precitex award for excellent performance in subject of spinning
- Understanding the concept of e-shedding through practical exposure and teaching the same

RESEARCH PROJECT

Development of low velocity high impact resistant single polymer composite from polypropylene using compression moulding. Observing the effect of structural variation on composite property and presenting correlation between composite macro-structure to its functional behaviour.

CERTIFICATION / TRAININGS

- Six Sigma Green Belt Certified – Awarded best GB project in Business Unit
- Industrial design training from IDC – IIT - Bombay
- Garment design training from National Institute of Design – Gandhinagar
- Foundation course for agricultural research services from NAARM – Hyderabad
- Python for Data Science from IIT - Madras
- Electronic Systems Design: Hands-On Circuits and PCB Design from IIT - Delhi
- Generative AI – Hyderabad
- Processing of Polymers and Polymer Composites from IIT – Roorkee
- Programming with Generative AI from IISc
- Embedded System Design with ARM from IIT – Kharagpur

EXPERT SESSION / TRAINING SESSION

- Expert Speaker at Intexcon 2025, Ahmedabad, Gujarat
- Expert Speaker at Intexcon 2024, Ahmedabad, Gujarat
- Member of Technical Research Advisory Committee (TRAC) WRA (2024-2026)
- Expert in Board of Studies for Textile Engineering Department at MSU Baroda (2023-2026)
- Technical Training for Multi-disciplinary Professional at Honeywell on IoT
- Skill Development Training for 100+ Professors, from Indian universities on E-Textile
- Startup Founder Talk for Joint Program in MedTech, IIT Jodhpur + AIIMS Jodhpur
- Expert Speaker at ITME 2016
- Expert Panellist for talk on Sustainable Technical Textiles in techtextil 2021 India
- Expert Lecture on Smart Clothing at NIFT Bhubaneswar
- Expert Lecture on Designing a Technical Textile at NID Ahmedabad
- Expert Lecture on Innovation in Textile at NIFT Gandhinagar
- Expert Lecture on Digital Clothing at Sona College of Technology, Salem
- Expert Lecture on Advanced Materials in Textile at TAI, Baroda Unit
- Webinar on Garment Design using CLO at Government Polytechnic for Girls, Surat
- External / Industrial examiner for MSU Baroda and NID Ahmedabad

GOVERNMENT GRANT / RECOGNITIONS

- 20 lakh INR grant, for startup idea on smart medical clothing from DST and Government of Gujarat
- Shortlisted in Top 3 startup ideas at GCCI Textile Leadership Conclave 2024
- Shortlisted as innovative Textile Startup for Bharat Tex 2025
- 50 lakh INR grant for startup idea on smart medical clothing in GREAT scheme under NTTM, Ministry of Textile