

# Niloofar Shirali

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Analytical, innovative and hands-on experience with over 3 years in research and development for various projects from controlled radical polymerization, material/polymer synthesis, pigment dispersant manufacture to Polyethylene film blowing, interfacial chemistry analysis and material characterization techniques.

## SKILLS

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- Material/Polymer Synthesis
- Formulation Development
- Material Characterization
- Project Management
- Coating & Surface Engineering
- Process Development & Optimization
- Design & Execution of Experiments
- Data Analysis & Route Causing
- Analytical Thinking & Problem Solving
- Multi-tasking ability
- Technical Documentation
- Positive and Respectful

## TECHNICAL ACUMEN

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- **Synthesis & Coating:** Developed a new method for synthesis of pigment dispersant, doping and coating development, characterization techniques such as GC, GPC, NMR, HPLC
- **Characterization & Instrumentation Skills:** GPC, GC, DSC, GPC, XRD, SEM, NMR, DMTA, HPLC
- **Software:** MATLAB, ASPEN, TopSpin, MS Office

## EDUCATION

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Master's of Science, Chemical Engineering (polymer science)  
Queen's University, Canada

|Sep 2017- April 2019|

Bachelor of Applied Science, Polymer Engineering  
Amirkabir University of Technology, Iran

| Sep2012-June 2016|

## PROFESSIONAL EXPERIENCE

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Research Assistance || Queen's University || Kingston, ON

|Sep 2017- April 2019|

### Key Responsibilities:

- **Dispersant synthesis & Optimization:** Perform a novel process for producing pigment dispersants in SET-LRP systems, set-up the copper tube reactor to synthesize the desired polymer, and investigated the optimized condition.
- **Performance Test Design & Execution:** design and planned the experiments, generate work orders, conduct dispersant performance test and provide feedbacks.
- **Characterization:** Analyzed reactions' data by GC, GPC and NMR techniques to figure out conversion and molecular weight through understanding the structural and chemical properties of dispersant.
- **Data Analysis, Reporting and Technical Documentation:** Performed quantitative and qualitative data analysis, generate progress reports and presentations, and develop SOPs for new formulation, procedures and test.

- **Collaboration & Coordination:** Liaised and collaborated with academic research group and paint & coating company in Singapore, scheduled and ran lab instruments training, supervised junior researchers.

\*This research was Submitted as a Chinese Patent, file number 201910457929.x, 29<sup>th</sup> May 2019

**Instructor & Teacher Assistant || Queen's University || Kingston, ON**

**|Sep 2018-March 2018|**

Key Responsibilities:

- **Instruction:** Instructed students on wide range of engineering skills and method from wet chemistry to chemical reaction design and heat transfer
- **Laboratory Set-up & Manual Preparation:** Set-up laboratories, prepared and developed step by step lab manuals, guided students in proper data collection, writing lab reports and statistics, coordinated teaching assistants from initial training and work schedule developing to final evaluation.

**Engineering Technician and Researcher || Khosh Paint & Resins|| Tehran, Iran**

**|July 2016- July 2017|**

Key Responsibilities:

- **Materials R&D Support:** Provided material selection, synthesized dispersant with special characterizations
- **Characterization & Testing:** Prepared test samples, conducted and analyzed various characterization tests including such as XRD, DSC/TGA and SEM.
- **Manufacturing Support:** Prepared multiple engineering drawing sets for assuring most efficient and cost-effective design and manufacturing process
- **Collaboration & Coordination:** Managed weekly meetings to finalize schedules and deliver monthly technical and progress reports, Coordinated as the representative in National Paint and Resin Exhibitions

## EARLIER NOTEWORTHY EXPERIENCE

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**Development Engineer Intern (Summer Position) || Shahin Plastics||Iran**

**|June 2015-August 2015|**

- Performed quality control and strength test on produced materials, Supervised technologists during fabrication and packaging process to ensure design conformity and implement Health and Safety Standards.

**Editor in Chief || Polymer & Color Engineering & Technology Journal (PET) ||Iran**

**|Sep2014-Sep2015|**

- Authored scientific sections to reflect recent advances in applied science for university students, PET ranked first university student's magazine in HARKAT National Festival of 2014 for scientific influence and quality.

**Winner of LG Challenger Competition || LG, Tehran, Iran**

**|Feb 2017-Feb 2018|**

- Received the top prize of \$10,000 and ranked among the top 1% of competitors with "Waste separation from the source in commercial centers of Iran" project, led a group of four students to propose an innovative solution for a nationwide environmental challenge.