

# Nadia E. Tolouei

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## EDUCATION

- **M.Sc. of Mechanical Engineering** Expected: December 2020  
Southern Illinois University Edwardsville, Illinois.

**Thesis Title:** Electrochemical impedance spectroscopy-based MEMS sensors for phthalates detection in juices.

- **B.Sc. of Textile Chemistry Engineering and Fiber Science** Graduated: May 2018  
Amir Kabir University of Technology (Tehran Polytechnic), Iran.

**Thesis Title:** Advanced electro spun nanocomposites fibers based on polylactic acid/halloysite nanotube for biomedical application.

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## TEACHING EXPERIENCE

- **Graduate Teaching Assistant for Engineering Chemistry Lab** Fall 2020  
Chemistry Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Materials Engineering Course** Fall 2020  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Organic biochemistry Lab** Spring 2020  
Chemistry Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Stress Lab** Spring 2020  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Materials Engineering Course** Spring and Fall 2019  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Numerical Simulation Course** Spring 2019  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Graduate Teaching Assistant for Engineering Problem Solving Course** Fall 2019  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Undergraduate Teaching Assistant for Physical Chemistry Course** Jan 2016 to May 2016  
Chemical Engineering Department, Amir Kabir University of Technology, Iran
- **Teaching Astronomy and Astrophysics Olympiad** 2012-2013  
Farzanegan High School, Tabriz, Iran

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## RESEARCH EXPERIENCE

- **Undergraduate Degree: Department of Textile Engineering, Amirkabir University of Technology**  
**Project 1:** Advanced electro spun nanocomposites fibers based on polylactic acid/halloysite nanotube for biomedical application  
  
**Project 2:** Application of amine terminated dendritic material for multipurpose modification of medical cotton gauze
- **Graduate Degree: Department of Mechanical Engineering, Southern Illinois University, Edwardsville**  
**Project 1:** Electrochemical Impedance spectroscopy-based MEMS sensor for Phthalates detection in juice.  
  
**Project 2:** Interdigitated biosensor for bacterial biofilm growth monitoring by impedance spectroscopy technique.

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## PUBLICATIONS

- **N. E. Tolouei**, S, Ghamari, M, Shavezipour, " Development of Circuit Models for Electrochemical Impedance Spectroscopy (EIS) Responses of Interdigitated MEMS Biochemical Sensors" Accepted in Journal of Electroanalytical Chemistry. (2020)
- **N. E. Tolouei**, M, Hankins, M, Shavezipour, " Detection of Low Concentrations of Di-Ethylhexyl Phthalate (DEHP) in Orange Juice Using Interdigitated MEMS Chemical Sensors" under review of International Journal of the Analytica Chimica Acta. (2020)
- **N. E. Tolouei**, R, Mazrouei, M, Shavezipour, "Development of Impedance-Based Three-Dimensional Biochemical Sensors for Detection of Chemicals in Aqueous Solutions" Accepted in International Journal for Analytical and Bioanalytical. (2020)
- **N. E. Tolouei**, Md. Bhuiyan, M, Hankins, M, Shavezipour, "Development of a MEMS chemical sensor for detection of phthalates in juice using electrochemical impedance spectroscopy" International Design Engineering Technical Conferences, (2020)
- **N. E. Tolouei**, S, Ghamari, M, Shavezipour, "Investigation of the effect of native oxide layer performance of interdigitated impedance-based silicon biochemical sensors" International Design Engineering Technical Conferences, (2020)
- **N. E. Tolouei**, M, Shavezipour, " Linearization of characteristics response of a capacitive MEMS pressure sensor by patterning dielectric layer" International Design Engineering Technical Conferences, (2020)

- **N. E. Tolouei**, S. Akbari, M. Delyanee, “Advanced electro spun nanocomposites fibers based on polylactic acid/halloysite nanotube for biomedical application” Nanotech Poland International Conference & exhibition, Poznan, Poland, (2017)
  - S. Akbari, E. Pajootan, Sh. Khalili Azar, F. Shahamati Fard, **N. E. Tolouei**, “Application of amine terminated dendritic material for multipurpose modification of medical cotton gauze,” Nanotech Poland International Conference & exhibition, Poznan, Poland, (2016)
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## HONORS AND AWARDS

- Nominated for best Teaching Assistant award Fall 2020  
Southern Illinois University, Edwardsville
  - Our conference paper awarded Best Paper 2nd Place in the 2020 ASME conference. August 2020  
Southern Illinois University, Edwardsville
  - Winning the Research Grants for Graduate Students (RGGS) Spring 2019  
Southern Illinois University, Edwardsville
  - Ranked in top 1% of approximately 350,000 Iranian participants in university entrance exam in mathematics and physics Fall 2013
  - First round winner of national Astronomy and Astrophysics Olympiad June 2011
  - Selected for National Organization for Development of Exceptional Talents (NODET) Through an exam among 80,000 participants for high school Fall 2009
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## RELEVANT PROFESSIONAL EXPERIENCE

- Association of Iran Textile Industries, Co-Op/Data Scientist May 2018- September 2018  
Tehran, Iran
  - Assisted in analysing data (gathering of sociological data through the observation of subjects in the field of textile industries)
  - Managed full project life cycle schedules (to make up the path that took our project from the beginning to the end)
  - Collaborated with management to discuss materials used and worked together to resolve budgeting restrictions
- Palazmokat Company, Co-Op/Internship March 2016-September 2016  
Tabriz, Iran
  - Experience in quality control lab and working with Design Expert and Microsoft Office Programs
  - Professional in using foulard machine and contact angle measurement device
  - Performed systems test to verify both operational and functional requirements of design modifications and analyzed systems

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## TECHNICAL EXPERIENCE

- **Graduate Research Assistant at MEMS Lab,** January 2019 to Present  
Mechanical Engineering Department, Southern Illinois University Edwardsville, IL
- **Undergraduate Research Assistant at Waste Water Management Lab,** August 2015-May 2018  
Textile Chemistry Engineering Department, Amir Kabir University of Technology, Iran
- **Undergraduate Research Assistant for Physical Chemistry Course** January 2015 to May 2015  
Chemical Engineering Department, Amir Kabir University of Technology, Iran

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## COMPUTER SKILLS

- **Programming languages**
  - MATLAB, Pascal, Python, Endnote
- **Engineering Software**
  - ANSYS, Design Expert, AutoCAD
- **Other**
  - Latex

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## TECHNICAL SKILLS

- Electrospinning
- MEMS Chip Design with AutoCAD
- LCR meter
- EIS Network Analyzer
- Making Nanofiber Scaffolds
- Column Chromatography
- Spectrophotometry
- Biological Evaluation of Scaffolds
- SEM (Scanning Electron Microscope)
- FTIR (Fourier Transform Infrared Spectroscopy)
- AFM (Atomic Force Microscopy)

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## CONFERENCES AND WORKSHOPS

- 12<sup>th</sup> international Seminar on polymer science and Technology” Spring 2016  
Islamic Azad University of Tehran, Iran
- 5<sup>th</sup> Royan International Summer School Summer 2014  
Stem Cells and Developmental Biology for Regenerative Medicine, Tehran, Iran

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## REFERENCE

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