

# Negar Sadeghipour

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## Education

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- Ph.D. candidate in Biomedical Engineering. Aug 2014 - Dec 2018  
*Illinois Institute of Technology* (Chicago, IL) GPA: 3.91/4.00
- B.S. in Materials Science and Engineering. Sep 2009 – Jun 2013  
*Sharif University of Technology* (Tehran, Iran) GPA: 3.55/4.00

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## Research Experience

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### Medical Imaging Research Center

*Graduate Research Assistant*

**Chicago**

2014 - 2018

- Working on Ph.D. thesis in Molecular imaging lab:
  - Designing and developing experiments to test cancer targeted drug delivery by imaging techniques
  - Developed compartmental models to analyze dynamic imaging data
  - Managing and negotiating orderings for lab equipment, and services
  - Assisting in lab maintenance and organization
  - Helping in writing different lab protocols
  - Collaborating with molecular imaging lab at Dartmouth College to analyze cross-modality data
  - Collaborating with chemistry lab at IIT to collect theranostic data for their antibody-drug conjugates
  - Designing a cheap window chamber model for long term imaging of mouse tumors

### Sharif University of Technology

*Undergraduate Research Assistant*

**Tehran**

2012 - 2013

- Worked in nanomaterials lab:
  - Synthesis of Super Paramagnetic Iron Oxide Nanoparticles (SPIONs) for biomedical applications

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## Working Experience

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- Working in animal facility at Illinois Tech **Chicago**
  - Responsible for the maintenance of the animal facility 2015 – 2018
- Research Assistant at Center for Molecular and Cellular Imaging **Tehran**
  - Synthesizing nanoparticles and modifying the surface of magnetic nanoparticles 2012 – 2014
  - Conducting material characterization tests
  - Writing lab protocols
- Laboratory assistant (internship) at Itrac Metallurgical laboratory **Tehran**
  - Preparing and testing samples for different destructive and non-destructive tests Summer 2013
  - Writing daily reports, filling out and filing test results

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## Peer-Reviewed Publications

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- SB Kim, SS Hori, **N Sadeghipour**, UK Sukumar, R Fujii, TF Massoud, R Paulmurugan, "Highly Sensitive Eight-Channel Light Sensing System for Biomedical Applications", *submitted*
- B Meng, M Folaron, R Strawbridge, **N Sadeghipour**, K Samkoe, KM Tichauer, SC Davis, "Dynamic dual-agent MRI-guided fluorescence tomography estimates receptor availability during receptor-targeted therapy", *ready to submit*.
- S Ren, X Sun, H Wang, TH Nguyen, **N Sadeghipour**, X Xu, CS Kang, Y Liu, H Xu, N Wu, Y Chen, KM Tichauer, DD Minh, HS Chong, "Design, Synthesis, and Biological Evaluation of Polyaminocarboxylate Ligand-Based Theranostic Conjugates for Antibody-Targeted Cancer Therapy and Near-Infrared Optical Imaging", *ChemMedChem* 13 (24), 2599-2599 (2018).

- **N Sadeghipour**, SC Davis, KM Tichauer, "Correcting for targeted and control agent signal differences in paired-agent molecular imaging of cancer cell-surface receptors," *J. Biomed. Opt.* 23(6), 066004 (2018).
- **N Sadeghipour**, SC Davis, KM Tichauer, "Generalized paired-agent kinetic model for in vivo quantification of cancer cell-surface receptors under receptor saturation conditions", *Physics in medicine and biology* 62(2), 394-414 (2017).

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### Teaching and Mentoring/Teamwork Experience

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- Mentoring Canary Crest Summer Program at Stanford Summer 2019
- Teaching Assistant for courses: 2017 – 2018
  - 1) Numerical methods, 2) Mass Transport for BME, 3) Senior Seminar
- Mentoring: 6 undergraduates working in molecular imaging lab 2015 - present
- Mentoring student groups in summer research immersion program at IIT Summer 2017 & 2018
- Managed weekly Journal Club in Molecular imaging lab 2015 – 2018

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### Conference Papers

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- KM. Tichauer, X Xu, **N Sadeghipour**, "Quantitative Fluorescence Molecular Imaging through Kinetic Modeling and Paired Agent Methods", Optical Molecular Probes, Imaging and Drug Delivery (pp. OW1D-1). Optical Society of America. 2019.
- **N Sadeghipour**, B Meng, M Folaron, R Strawbridge, K Samkoe, KM Tichauer, SC Davis, "Uptake of a fluorescence imaging agent in an orthotopic glioblastoma using fluorescence molecular tomography", Proceedings of SPIE. 10862, 108620J, 2019.
- B Meng, M Folaron, R Strawbridge, **N Sadeghipour**, K Samkoe, KM Tichauer, SC Davis, "Noninvasive imaging of dual-agent uptake in glioma and normal tissue using MRI-coupled fluorescence tomography", Proceedings of SPIE. 10874, 1087413, 2019.
- **N Sadeghipour**, SC Davis, KM Tichauer, "Quantifying cancer cell receptors with paired-agent fluorescent imaging: a novel method to account for tissue optical property effects," *Proceedings of SPIE*. 10497, 1049723, 2018.

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### Conference Proceedings and Abstracts

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- KM. Tichauer, X Xu, **N Sadeghipour**, "Quantitative Fluorescence Molecular Imaging through Kinetic Modeling and Paired Agent Methods", Optical Molecular Probes, Imaging and Drug Delivery. *Optical Society of America*, Tucson, AZ (2019).
- **N Sadeghipour**, B Meng, M Folaron, R Strawbridge, K Samkoe, KM Tichauer, SC Davis, "Uptake of a fluorescence imaging agent in an orthotopic glioblastoma using fluorescence molecular tomography", *SPIE Photonic West*, San Francisco, CA (2019)
- B Meng, M Folaron, R Strawbridge, **N Sadeghipour**, K Samkoe, KM Tichauer, SC Davis, "Noninvasive imaging of dual-agent uptake in glioma and normal tissue using MRI-coupled fluorescence tomography", *SPIE Photonic West*, San Francisco, CA (2019)
- **N Sadeghipour**, B Meng, M Folaron, R Strawbridge, K Samkoe, KM Tichauer, SC Davis, "MRI/fluorescence-based estimation of extracellular receptors for cancer targeted drug therapy", 2018 *World Molecular Imaging*, Seattle, WA, (2018)
- **N Sadeghipour**, G Lu, EL Rosenthal, SC Davis, KM Tichauer, "A non-invasive method to measure antibody receptor occupancy using paired-agent imaging with antibodies to accurately estimate receptor concentration", 2018 *World Molecular Imaging*, Seattle, WA, (2018)
- **N Sadeghipour**, SC Davis, KM Tichauer, "Cell-surface receptor concentration imaging by paired-agent method and correcting for tissue optical property differences in the kinetic model", 2018 *World Molecular Imaging*, Seattle, WA, (2018)
- B Meng, M Folaron, R Strawbridge, **N Sadeghipour**, KM Tichauer, SC Davis, "MRI/fluorescence-based estimation of extracellular receptors for cancer targeted drug therapy", 2018 *World Molecular Imaging*, Seattle, WA, (2018)
- **N Sadeghipour**, SC Davis, KM Tichauer, "Quantifying cancer cell receptors with paired-agent fluorescent imaging: a novel method to account for tissue optical property effects". *SPIE Photonic West*, San Francisco, CA (2017)
- **N Sadeghipour**, SC Davis, KM Tichauer, "Connection between molecular targeted drug response and molecular environment in cancer therapy: testing EGFR status vs. Erbitux therapy", 2017 *World Molecular Imaging*, Philadelphia, PA, (2017)
- **N Sadeghipour**, SC Davis, KM Tichauer, "In vivo Quantification of Cancer Cell-Surface Receptors Under Saturation Conditions by Generalized Paired-Agent Kinetic Model", 2016 *Biomedical Engineering Society*, Minneapolis, MN (2016)

- **N Sadeghipour**, SC Davis, KM Tichauer, "Generalized paired-agent kinetic model for in vivo quantification of cancer cell-surface receptors under receptor saturation conditions", 2016 *World Molecular Imaging*, New York, NY (2016)
- **N Sadeghipour**, R Irajirad, H Delavari, H Madaahhosseini, "Surface Modification of Magnetite nanoparticles With Silane and Biocompatible Polymers (mPeg and Dextran): Synthesis and Characterization". *Solid Surface conference*, Paris, France (2013)

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## Honors and Awards

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| • Industry Selected Poster Award, <i>World Molecular Imaging Congress</i>                       | Summer 2018 |
| • Student Travel Stipend, <i>World Molecular Imaging Congress</i>                               | Summer 2017 |
| • Received Academic Excellence Award for B.S. program at <i>Sharif University of Technology</i> | 2013        |

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## Skills

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### *Computer skills:*

- Upper intermediate: MATLAB, Microsoft Office, LaTeX, Prism.
  - Numerical simulations, ODE and PDE systems, Data fitting and Optimization.
- Intermediate: AutoCad, HTML.

### *Laboratory Skills:*

- Handling small animals: Including intravascular and intraperitoneal injections, tumor implantation, animal surgical procedures
- Working experience in wet lab
- Cell culturing (breast, pancreatic, colon, head and neck cancer cell lines, MCF10A, IMR90, Heck293) maintenance of the cells, transfection with plasmid
- Cloning, transformation, plasmid extraction, gel electrophoresis
- DNA digestion, ligation, PCR,
- Working with Light and fluorescence microscopy, Pearl©, Lago©
- RNA extraction, cDNA synthesis, qPCR
- Luciferase assay (GLuc, FLuc), protein assays (SEAP, PLAP)
- Celigo Imaging system for cell counting and monitoring