Emily G. Ripka, Ph.D

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Currently working in medical image signal/image reconstruction and image processing, with specific expertise in large multi-dimensional dataset processing, statistical inference, and result visualization.

Education

2016-2019　PhD in Chemistry, Syracuse University
2012-2016　BS in Geochemistry, Math Minor, State University of New York (SUNY) at Oswego

Skills

PROGRAMMING LANGUAGES:	Python (2 & 3), C++, MATLAB, Javascript
PYDATA STACK:	NumPy, SciPy, matplotlib, Pandas, jupyter notebooks, PyQt, Tkinter
WEB DEVELOPMENT:	Django, HTML5, CSS3, React, Nodejs, Bootstrap, Webpack
VERSION CONTROL:	Git, Subversion, Mercurial
MISCELLANEOUS:	Linux, LaTeX, XML, Markdown, command line interface

Experiences

Canon Medical Research USA | Research Scientist | Dec. 2019 - Present (8 months)

- Developed metal artifact correction product feature for MRI scanner
  - Developed image reconstruction prototype
    * Basic prototype script developed (python/matlab)
    * Ported script to product code architecture (C++), involving iterative work with software team
  - Conducted initial alpha testing of product
- Gained functional expertise in the company's two large C++ code bases within 8 months of start date

Syracuse University | Graduate Researcher | Aug. 2016 - Nov. 2019 (3 years 4 months)

- Developed processing algorithms for multidimensional NMR spectroscopy data
  - Python scripts and jupyter notebooks utilized to create advanced visualizations of multiparametric data
  - Heavily utilized spectral processing python package pyspecdata
- Developed NMR techniques and methodologies to investigate organic-inorganic interactions at nanomaterial surfaces, including:
  - Pulse-field gradient (PFG) stimulated echo (STE) diffusion techniques
  - Inversion recovery (T_1) and Carr-Purcell-Meiboom-Gill (CPMG) (T_2) relaxation work

Honors and Awards

- Syracuse University Dept. Chem. Outstanding Graduate Teaching Award, 2019
- Syracuse University Teaching Mentor Appointment, 2019 (May-August)
- Syracuse University Graduate Student Visitation Day Best Poster Award, 2019 (March)
- 3 Minute Thesis (3MT) Competition, People's Choice Award, 2019 (February)
- ACS Colloid and Surface Chemistry Division Outstanding Student Poster Award ($250), 2018 (August)
- Stevenson Biomaterials Research Poster Session Honorary Mention, 2018 (April)
- Graduate Assistance in Areas of National Need (GAANN) Fellowship, 2017 (September) - present
- SUNY Oswego Undergraduate Research Symposia (QUEST) Sigma-Xi Award, 2016 (Spring)
- SUNY Oswego Student-Faculty Challenge Grant ($4500), 2015 (Spring)

Select Publications & Presentations (3 of 10)

Self, *Undergraduate Mentee*, <u>Collaborator</u>, *PI, ‡Authors contributed equally

3. **Ripka, E. G.**, *Deschene, C. R.*, <u>Franck, J. M.</u>, Maye, M. M.* "Diffusion and relaxation NMR spectroscopy: A tool for monitoring reactions at nanomaterial surfaces." *2019 ACS Northeast Regional Meeting, Saratoga Springs, NY*, **June 23-26, 2019**. **Oral Presentation**: 34, Dynamic Biointerfaces

2. Chen, Y.‡, **Ripka, E. G.**‡, <u>Franck, J. M.</u>, Maye, M. M.* "Ligand Surface Density Decreases with Quantum Rod Aspect Ratio", , *J. Phys. Chem. C*, **2019**. 10.1021/acs.jpcc.9b03682

1. **Ripka, E. G.**, *Deschene, C. R.*, <u>Franck, J. M.</u>, <u>Bae, I.-T.</u>, Maye, M. M.* "Understanding the Surface Properties of Halide Exchanged Cesium Lead Halide Nanoparticles", *Langmuir*, **2018**. 10.1021/acs.langmuir.8b02148