

JACOB J. EWING

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PROFESSIONAL EXPERIENCE

INTERDISCIPLINARY MICROSYSTEMS GROUP (UNIVERSITY OF FLORIDA)

Gainesville, FL

Undergraduate Research Assistant

March 2017 – Present

- Designed and conducted experiments on electrodeposition and screen printing of magnetic films.
- Characterized CoPt and BaFe₁₂O₁₉ magnetic films using SEM, VSM and EDS analysis.
- Developed a dry film photolithography process that was implemented in electrodeposition.

SANDIA NATIONAL LABORATORIES

Albuquerque, NM

MEMS Technologies R&D Student Intern

June 2018 – August 2018

- Electroplated Cd films using multiple chemistries and plating conditions for fundamental materials research.
- Performed pulse electrodeposition of copper in 3D printed molds for a microinductor.
- Designed parts on Solidworks and AutoCAD for electroplating setups and MEMS development.

SANTA FE COLLEGE MATH DEPARTMENT

Gainesville, FL

Mathematics Tutor and Teaching Assistant

January 2016 – December 2016

EDUCATION

UNIVERSITY OF FLORIDA || 3.98

Gainesville, FL

Materials Science and Engineering

January 2017-May 2019

SANTA FE COLLEGE || 4.0

Gainesville, FL

Engineering (Highest Distinction, Honors Certificate)

August 2014 – December 2016

LEADERSHIP

- Professional Chair for UF Chapter of Materials Advantage 2018.
- Project Lead for a ceramics design competition to create high dielectric materials.
- Project Lead for an aircraft design optimization competition using flight simulation software.

SKILLS

Excel, Word, Powerpoint, Python, Arduino, Labview, MATLAB, Solidworks, AutoCAD, SEM, EDS, VSM (magnetic characterization), Electroplating, Lithography, Screen Printing, XRD, Charpy Impact Testing, Tensile Testing, Fiberglass and Carbon Fiber layup, Hardness Testing (Rockwell)

PUBLICATIONS

JOURNAL ARTICLES:

J. Ewing, Y. Wang, D.P. Arnold, "High-current-density electrodeposition using pulsed and constant currents to produce thick CoPt magnetic films on silicon substrates," *AIP Adv.*, vol. 8, no. 5, 056711, 5 pages, May 2018.

C. Velez, J. Ewing, S. Hwangbo, K. Sondhi, T. Schumann, Y.K. Yoon, D.P. Arnold, "Low-temperature micropatterning of thick-film BaFe₁₂O₁₉ composites on semiconductor substrates for integrated millimeter wave devices," vol. 3, pp. 19–21, 2018.

CONFERENCE PRESENTATIONS:

J. Ewing, Y. Wang, D.P. Arnold, "Stress control in thick CoPt magnetic films through pulsed electrodeposition," presented at *62nd Annual Magnetism & Magnetic Materials (MMM) Conf.*, Pittsburg, PA, Nov. 2017. (Oral Presentation)

Y. Wang, J. Ewing, D.P. Arnold, "Increasing the thickness and deposition rate of high performance electroplated CoPt Permanent magnets," presented at Hilton Head Workshop 2018, Hilton Head, SC, Jun. 2018. (Poster Presentation, included short paper)