Gerald L. Knapp

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Graduate student in materials science at Penn State University, researching additive manufacturing technologies

Education

Pennsylvania State University, University Park, PA Graduate Student, Materials Science and Engineering	Aug 2016 – present
Louisiana State University, Baton Rouge, LA BS in Mechanical Engineering, Minor in Materials Science	May 2016 Overall GPA: 3.49

Technical Electives: Advanced Materials Analysis, Fracture Mechanics, Scientific Computer Visualization, Corrosion Engineering, Composite Materials

Research Experience

Graduate Assistant at *Penn State University Modeling and Welding of Metals Group.....(8/2016–present)*
Advisors: Dr. T. DebRoy and Dr. Todd Palmer

- *Roles:* Heat transfer modeling of additive manufacturing processes

Undergraduate Research Assistant at *LSU X-Ray Tomography Laboratory…….……(5/2013–7/2016)*
Advisor: Dr. Les Butler

- *Roles:* CAD, X-ray CT, workflow development, high performance computing
- *Software:* SolidWorks, Mathematica, MATLAB, Python, VisTrails

Undergraduate Research Assistant at *LSU Microfluidics Laboratory……...(5/2012–5/2014)*
Advisor: Dr. Todd Monroe

- *Roles:* Photolithography, microfluidic device fabrication & characterization, light microscopy, computer-assisted sperm analysis (CASA)
- *Certifications:* Clean room (Class 100) safety, Radiation safety, General laboratory safety.

Undergraduate Research Assistant at *UCBL1, Lyon, France…….….(9/2013–12/2013)*
Dr. Catherine Journet (unpaid experience).

- *Roles: E*lectric arc nanotube synthesis, materials analysis (SEM & TEM)

Undergraduate Research Assistant at *LSU Hurricane Research Center & CAPTURE Lab.…(8/2011–5/2012)*

- *Roles:* Android tablet application development, building hazard assessment data management
- *Software:* Android SDK, Java, SQLite

Additional Experience

Entrepreneurial Lead at *National Science Foundation I-Corps Program…..……...(7/2015–8/2015)*

- Lean Business Development, customer discovery, product development of additive manufacturing quality management software

Mechanical Engineering Intern at *Air Liquide Large Industries US, Freeport, TX……..….(5/2014–8/2014)*

- Maximo data entry, critical spare part identification, Google Apps for Business trainer

Residential Assistant at *LSU Department of Residential Life, Baton Rouge, LA…….(8/2012–5/2013)*

- Community building, policy enforcement, event programming, peer role model

Intern at *Technology Engineers, Baton Rouge, LA……...(6/2011–8/2011)*

- Local and remote IT support, VB.Net software development, SQL database management

Honors and Awards

Eagle Scout (2010)
NSF I-Corps: Manufacturing Visualization and Analysis (Award #1550460)
Tony & Natalie Harper Global Engineering Award
Louisiana State University Alumni Association's Global Leaders Scholarship
Howard Hughes Medical Institute Summer Scholars Program
Flagship Scholars Award
Mable and Boykin W. Pegues Scholarship

Papers and Presentations

Poster presentations:

- "A Provenance Management System for Tomography Data Processing and Visualization" – International Conference on Tomography of Materials and Structures 2015 (refereed submission)
- "Use of Provenance Data Management System For K-Edge Analysis of Flame Retardant X-Ray Tomography" – LSU Discover Day, 2015
- "A Next Generation Laboratory X-Ray Tomography/Interferometry System" – LSU URC, 2014 (awarded 2nd place in technical poster competition)
- "Characterization of a Microfluidic Lab-on-a-Chip for Activation of Sperm" – LSU SURF, 2012

Papers:

- T. Scherr, G. Knapp, A. Guitreau, D. Park, T. Tiersch, K. Nandakumar, W.T. Monroe, "Microfluidics and numerical simulation as methods for standardization of zebrafish sperm cell activation", *Biomedical Microdevices*, 2015, 17(3):65. DOI: 10.1007/s10544-015-9957-6
- M.B. Olatinwo, K. Ham, J. McCarney, S. Marathe, G. Knapp, L.G. Butler, "Analysis of Flame Retardancy in Polymer Blends by Synchrotron X-ray K-edge Tomography and Interferometric Phase Contrast Movies" *[in review]*
- M.B. Olatinwo, K. Ham, J. McCarney, S. Marathe, G. Knapp, L.G. Butler, "Study of an advanced brominated flame retardant with the Underwriters Laboratory 94 test, X-ray K-edge tomography, and X-ray grating-based phase contrast interferometry" *[in preparation 2015]*
- O. Kio, J. Yuan, M. Olatinwo, A. Brooks, G. Knapp, K. Ham, J. Ge, W.W. Johnson, K.L. Matthews, D. van Loo, L.G. Butler, "Non-Destructive Evaluation of Polymer Additive Manufacturing with X-ray Interferometry" *[in preparation 2015]*
- J. Yuan, G. Knapp, S. Liner, C. Hynes, B. Olatinwo, A. Brooks, E. Ekpo, J. Ge, K. Ham, R. Beaird, L.G. Butler, "Data Workflow and Visualization: X-Ray Interferometry, Vistrails and IPad/Android Collaboration," *Proceedings of Louisiana EPSCoR RII LA-SiGMA 2013 Symposium*, 2013.

Workshops:

- "Effective Communication with Faculty and Staff" – LSU Communication Across the Curriculum (Workshop leader/organizer: April 2013, October 2014, March 2015)

Leadership and Service

Outreach Co-chair, LSU Society of Peer Mentors
Constitution Revision Committee Chair, LSU Society of Peer Mentors
Committee Member, LSU Spring Greening Day
Senator, LSU Residents Hall Association Community Council
Volunteer, Volunteers in Public Schools of Greater Baton Rouge Reading Buddy