Résumé for Gerald L. Knapp **(225) 284-4173**
gknapp510@gmail.com

Summary: Doctoral candidate in Department of Materials Science and Engineering at The Pennsylvania State University investigating metal AM processes for creating reliable, defect-free parts.

Education

Pennsylvania State University, University Park, PA **2016 – present**
PhD Candidate, Materials Science and Engineering GPA: 3.82/4.0

Louisiana State University, Baton Rouge, LA **2011 – 2016**
BS in Mechanical Engineering, Minor in Materials Science GPA: 3.49/4.0

Selected Experience

Graduate Assistant at *Penn State University* **2016–present**
Advisors: Dr. T. DebRoy and Dr. Todd Palmer

- Simulation of fluid flow, solidification, and defect formation during AM processes through development and testing of in-house numerical software. Collaboration with experimentalists to validate models and explain significant physical phenomena. Laboratory safety officer from 2017-2019.

Undergraduate Research Assistant at *LSU X-Ray Tomography Laboratory* **2013–2016**

- Development of CAD models, BOM, and manufacturing drawings for a novel X-ray micro-CT system. Interdisciplinary collaboration for assembly of the design. Big data handling and provenance for high performance computing workflows for tomographic data processing using Python.

Entrepreneurial Lead at *National Science Foundation I-Corps Program* **2015**

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

Mechanical Engineering Intern at *Air Liquide Large Industries US* **2014**

- Maximo data entry and critical spare part identification. Site contact for implementation of Google for Business implementation.

Undergraduate Research Assistant at *LSU Microfluidics Laboratory* **2012–2014**

- Used photolithography at the LSU synchrotron beamline clean room to fabricate microfluidic mixing devices. Applied computer vision for motion tracking of particles in mixer.

Selected Awards, Recognition and Community

- Carlos Pantano Fellowship, Pennsylvania State University, 2019
- Material Research Society Penn State Student Chapter Outreach Chair, 2018–2019
- NSF Graduate Research Fellowship Program Honorable Mention, 2018
- Graduate and Professional Student Association Delegate, 2016–2018
- NSF I-Corps: Manufacturing Visualization and Analysis (Award #1550460), 2015

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Selected Research Articles

- **G.L. Knapp**, N. Raghavan, A. Plotkowski, T. DebRoy, Experiments and simulations on solidification microstructure for Inconel 718 in powder bed fusion electron beam additive manufacturing, Additive Manufacturing, 2019, vol. 25, pp. 511-521.
- H.L. Wei, **G.L. Knapp**, T. Mukherjee, T. DebRoy. Three-dimensional grain growth during multi-layer printing of a nickel-based alloy Inconel 718. Additive Manufacturing, 2019, vol. 25, pp. 448-459.
- **G.L. Knapp**, T. Mukherjee, J.S. Zuback, H.L. Wei, T.A. Palmer, A. De, T. DebRoy, Building blocks for a digital twin of additive manufacturing, *Acta Materialia*, 2017, vol. 135, pp. 390-399.
- A.J. Brooks, **G.L. Knapp**, J. Yuan, C.G. Lowery, M. Pan, B.E. Cadigan, S. Guo, D.S. Hussey, L.G. Butler, Neutron imaging of laser melted SS316 test objects with spatially resolved small angle neutron scattering. *Journal of Imaging*, 2017, vol. 3(4), 58.