

AUSTIN R.C. GERLT

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📍 106 Wilber Avenue, Columbus, Ohio, 43215

EDUCATION

- The Ohio State University, Columbus OH (4.00)** *Aug 2020 - Present*
Doctor of Philosophy in Material Science and Engineering
- mesoscale computational modeling, grain evolution, and texture
- Carnegie Mellon University, Pittsburgh PA (3.00)** *Aug 2015 - May 2017*
Masters of Science in Material Science and Engineering
- additive manufacturing, dynamic modeling, and grain evolution
- Missouri University of Science and Technology, Rolla MO (3.37)** *Aug 2010-May 2014*
Bachelors of Science in Ceramic Engineering, Minor in Leadership Communication
-high temperature ceramics and electroceramics

TECHNICAL SKILLS

- Programming:** Python (*preferred*), C, C++, Bash, MATLAB, FORTRAN90, git
Software: SPPARKS, DREAM.3D, ParaView, CTH, MS Office, GIMP, Blender, FIJI
Laboratory: SEM, TEM, EBSD, XRD

SELECTED WORK EXPERIENCE

- Computational Research Scientist** *UES, Air Force Research Lab, Dayton, OH* *May 2017 -present*
- High Performance Computing expert for AFRL's Structural Materials Division (RXCM).
- *Principle Modeling efforts:* dynamic shock modeling, origins of abnormal grain growth, Monte Carlo modeling, martensitic phase transformation, ML-accelerated material selection.
- Lead semi-annual workshops teaching scientific python
- Refractories Research Internship** *Vesuvius Research and Development, Pittsburgh, PA* *May 2015 - Aug 2015*
- Developed low cost, high yield IR opacification insulation for SOFC's, as well as SiC-based monolithic crucibles.
- Additive Manufacturing Internship** *GE Aviation, Evansdale, OH* *May 2013 - Aug 2013*
- Used additive manufacturing to successfully produce ceramic investment castings for Inconel turbine blades.
- Ceramic Engineering Research Assistant** *Missouri ST, Rolla MO* *Dec 2010 - Dec 2013*
- Developed environmentally benign cerium-based passivation coatings to replace chrome.

SELECTED PUBLICATIONS

1. E. J. Payton, A. R. C. Gerlt, and A. L. Pilchak. Simulations of the relative importance of initial size advantage and boundary energy anisotropy in abnormal grain growth. In *Journal of Physics: Conference Series*, volume 1270, 2019. Cited By :1
2. A. R. C. Gerlt, A. K. Criner, L. Semiatin, and E. J. Payton. On the grain size proportionality constants calculated in m.i. mendelson's "average grain size in polycrystalline ceramics". *Journal of the American Ceramic Society*, 102(1):37–41, 2019. Cited By :9
3. S. L. Semiatin, N. C. Levkulich, A. R. C. Gerlt, E. J. Payton, J. S. Tiley, F. Zhang, R. A. MacKay, R. V. Miner, and T. P. Gabb. High-temperature static coarsening of gamma-prime precipitates in nialcr-x single crystals. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, 2019. Cited By :2
4. A. R. C. Gerlt, R. S. Picard, A. E. Saurber, A. K. Criner, S. L. Semiatin, and E. J. Payton. A transfer function for relating mean 2d cross-section measurements to mean 3d particle sizes. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, 49(10):4424–4428, 2018. Cited By 9
5. A.R.C. Gerlt, A.K. Criner, S.L. Semiatin, K.N. Wertz, and E.J. Payton. Non-linear transfer functions for accurately estimating 3d particle size, distribution, and expected error from 2d cross sections of a lognormal distribution of spherical particles. *Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, 52(1):228–241, 2021