

CONTACT INFORMATION	33-45 29th Street Astoria, NY 11106	<i>E-mail:</i> adam.generale@gmail.com <i>Phone:</i> (914) 646-5393
EDUCATION	Georgia Institute of Technology , Atlanta, GA, USA	2024
	<i>Ph.D. Materials Informatics</i>	
	<ul style="list-style-type: none">• Thesis: "Neural Inverse Microstructure Design with Bayesian Scale-Bridging"• Advisor: Surya R. Kalidindi	
	University of Manchester , Manchester, UK	2014
	<i>M.S. Mechanical Engineering</i>	
	<ul style="list-style-type: none">• Thesis: "Generalized Deformation in Heterogeneous Materials in Mode I Fracture"• Advisor: Andrey Jivkov	
RESEARCH EXPERIENCE	Rensselaer Polytechnic Institute , Troy, NY, USA	2011
	<i>B.S. Mechanical Engineering</i>	
	Georgia Institute of Technology , Atlanta, GA, USA	Sep 2019 - Jan 2024
	<i>Graduate Research Assistant</i>	
	<ul style="list-style-type: none">• Focus on flow-based generative models (e.g., continuous normalizing flows, flow matching), Bayesian statistics, and Gaussian processes applied towards enabling data-driven materials exploration, learning process dynamics, and statistical model calibration.	
	Air Force Research Laboratory , Dayton, OH, USA	Jun 2020 - Oct 2020
PROFESSIONAL EXPERIENCE	<i>Research Intern</i>	
	<ul style="list-style-type: none">• Developed framework for the Bayesian calibration of a multimode constitutive damage model through fusing information from disparate experimental measurements.	
	Multiscale Technologies , Atlanta, GA, USA	Jan 2023 - Present
	<i>Principal Research Scientist</i>	
	<ul style="list-style-type: none">• Developed Neural ODE/SDE architectures for efficiently learning dynamical systems from unaligned marginal data and identifying families of inverse solutions (e.g., materials and process synthesis design) through conditional transport maps.• Implemented information-theoretic strategies for the construction of optimal experimental designs towards identifying novel materials.	
	Pratt & Whitney , East Hartford, CT, USA	Feb 2016 - April 2020
AWARDS	<i>Senior Aero/Thermal Engineer</i>	
	<ul style="list-style-type: none">• Designed internal cooling schemes through sequentially coupled thermo-mechanical models of turbine airfoils to meet mission life requirements.	
	IMECE Travel Award, American Society of Mechanical Engineers	2023
	CMS3 Fellowship, Texas A&M University	2023
	Sloan Foundation Fellowship, Alfred P. Sloan Foundation	2020
	President's Fellowship, Georgia Institute of Technology	2020
	Team of the Quarter, Pratt & Whitney	Q2 2016, Q4 2017
	Best Dissertation, University of Manchester	2014
	Best Overall Performance, University of Manchester	2014
Rensselaer Leadership Award, Rensselaer Polytechnic Institute	2007	
TECHNICAL KNOWLEDGE	Statistical Modeling, Bayesian Statistics, Machine Learning, Signal Processing, Data Analysis, Numerical Methods, Finite Element Analysis, Continuum Mechanics, High-Performance Computing Software: ABAQUS, ANSYS, Fluent, Star-CCM+ Languages: Proficient: Python (<i>PyTorch</i> , <i>GPyTorch</i> , <i>Jax</i>), MATLAB; Familiar: Fortran	

- PUBLICATIONS** **Generale, A.P.**, Kelly, C., Harrington, G.R., Robertson, A.E., Buzzy, M., Kalidindi, S.R. (2023). A Bayesian Approach to Designing Microstructures and Processing Pathways for Tailored Material Properties. *NeurIPS Workshop - AI for Accelerated Materials Design*.
- Generale, A.P.**, Robertson, A.E., Kelly, C., Kalidindi, S.R. (2023). Inverse Stochastic Microstructure Design. *SSRN Preprint*. doi: [10.2139/ssrn.4590691](https://doi.org/10.2139/ssrn.4590691).
- Generale, A.P.**, Kalidindi, S.R. (2023). Uncertainty quantification and propagation in the microstructure-sensitive prediction of stress-strain response of woven ceramic matrix composites. *Computers & Structures*, 286, 107110. doi: [10.1016/j.compstruc.2023.107110](https://doi.org/10.1016/j.compstruc.2023.107110).
- Wang, S., **Generale, A.P.**, Kalidindi, S.R., Joseph, V.R. (2023). Sequential Designs for Filling Output Spaces. *Technometrics*, 0, 1-12. doi: [10.1080/00401706.2023.2231042](https://doi.org/10.1080/00401706.2023.2231042)
- Generale, A.P.**, Hall, R.B., Brockman, R.A., Joseph, V.R., Jefferson, G., Zawada, L., Pierce, J., Kalidindi, S.R. (2022). Bayesian calibration of continuum damage model parameters for an oxide-oxide ceramic matrix composite using inhomogeneous experimental data. *Mechanics of Materials*, 175, 104487. doi: [10.1016/j.mechmat.2022.104487](https://doi.org/10.1016/j.mechmat.2022.104487).
- Hall, R.B., Brockman, R.A., **Generale, A.P.**, Joseph, V.R., Kalidindi, S.R. (2022). A Viscous Damage Theory for Ceramic Matrix Composites in Multi-Axial Loading. *Proceedings of the 12th International Conference on the Mechanics of Time Dependent Materials*.
- Generale, A.P.**, Kalidindi, S.R. (2021). Reduced-order Models for Microstructure-Sensitive Effective thermal Conductivity of Woven Ceramic Matrix Composites with Residual Porosity. *Compos. Structures*, 274, 114399. doi: [10.1016/j.compstruct.2021.114399](https://doi.org/10.1016/j.compstruct.2021.114399)
- PATENTS** Jackson, R.W., **Generale, A.P.**, Liu, X., Zelesky, M.F., 2023. Airfoil having environmental barrier top-coats that vary in composition by location. US11608749B2.
- Quach, S., **Generale, A.P.**, Surace, R., Dvorozniak, L., 2022. Engine with cooling passage circuit for air prior to ceramic component. US11492914B2.
- Generale, A.P.**, Dvorozniak, L., Quach, S., 2022. Ceramic airfoil with cooling air turn. US11473444B2.
- Generale, A.P.**, Dvorozniak, L., Quach, S., 2022. Baffle with impingement holes. US11415002B2.
- Generale, A.P.**, Mongillo, D.J., 2022. Components for gas turbine engines. US11371360B2.
- Quach, S., Dube, B.P., Propheter-Hinckley, T.A., Arisi, A.N., **Generale, A.P.**, Dvorozniak, L., Liles, H.J., 2022. Cooling arrangement including overlapping diffusers. US11339667B2.
- Generale, A.P.**, Dvorozniak, L., Quach, S., Dube, B.P., 2022. Baffle with tail. US11280201B2.
- Generale, A.P.**, Mongillo, D.J., 2022. Components for gas turbine engines. US11261749B2.
- Generale, A.P.**, Mongillo, D.J., 2022. Trailing edge insert for airfoil vane. US11242758B2.
- Generale, A.P.**, Propheter-Hinckley, T.A., 2021. Airfoil assembly with ceramic airfoil pieces and seal. US11162368B2.
- Spangler, B.W., **Generale, A.P.**, Vu, K.H., 2021. Gas turbine engine cooling component. US11131212B2.
- Generale, A.P.**, Liles, H.J., 2021. Airfoil with metallic shield. US11092015B2.
- Generale, A.P.**, Dube, B.P., 2021. Thermal gradient reducing device for gas turbine engine component. US11078844B2.
- Generale, A.P.**, Dube, B.P., 2021. CMC airfoil with cooling holes. EP3808940A1.
- Spangler, B.W., **Generale, A.P.**, 2021. Shell and spar airfoil. US10934857B2.
- Vu, K.H., **Generale, A.P.**, 2020. Vane platform leading edge recessed pocket with cover. US10822962B2.
- Devore, M.A., **Generale, A.P.**, Propheter-Hinckley, T.A., 2020. Airfoil with geometrically segmented coating section. US10711624B2.
- Spangler, B.W., **Generale, A.P.**, 2020. Axial flow cooling scheme with castable structural rib for a gas turbine engine. US10822963B2.
- Mongillo, D.J., **Generale, A.P.**, 2020. Platform flow turning elements for gas turbine engine components. US10655496B2.
- Spangler, B.W., **Generale, A.P.**, 2020. Gas turbine engine cooling component. US10648351B2.
- Generale, A.P.**, Howard, B.L., 2020. Vane air inlet with fillet. US10619492B2.
- Clum, C., **Generale, A.P.**, 2019. Adjustable flow split platform cooling for gas turbine engine. US10513947B2.
- Thornton, L.M., **Generale, A.P.**, 2019. Vane including internal radiant heat shield. EP3567220B8.