

# Rebecca Tafoya

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Graduate Student  
Department of Chemical Engineering  
University of Texas at Austin

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## EDUCATION

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<b>University of Texas at Austin (UT Austin)</b> Ph.D. student in Chemical Engineering Advisor: Delia Milliron	<b>2021 – Present</b>
<b>University of New Mexico (UNM)</b> B.S. in Chemical Engineering, <i>summa cum laude</i> , GPA: 4.21/4.33 Concentration: Materials Processing	<b>2017 – 2021</b>

## PEER REVIEWED PUBLICATIONS

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1. **Tafoya, R.R.**; Cook, A.W.; Kaehr, B.; Downing, J.R.; Hersam, M.C.; Secor, E.B. Real-Time Optical process monitoring for structure and property control of aerosol jet printed functional materials. *Advanced Materials Technologies*, 2020. <https://doi.org/10.1002/admt.202000781>
  2. **Tafoya, R.R.**; Secor E.B. Understanding and mitigating process drift in aerosol jet printing. *IOP, Flexible and Printed Electronics*, 2020, 5, 015009. <https://doi.org/10.1088/2058-8585/ab6e74>
  3. **Tafoya, R.R.**; Secor, E.B. Understanding effects of printhead geometry in aerosol jet printing. *IOP, Flexible and Printed Electronics*, 2020, 5, 035004. <https://doi.org/10.1088/2058-8585/aba2bb>
  4. Martinez-Acosta, A.; **Tafoya, R.R.**; Quinones, S.A.; Secor, E.B. Modular motion control software development to support a versatile, low-cost aerosol jet platform for printed electronics. *Elsevier, Additive Manufacturing*, 2020, 40, 101932. <https://doi.org/10.1016/j.addma.2021.101932>
  5. **Tafoya, R.R.**; Gallegos, M.A.; Downing, J.R.; Gamba, L.; Kaehr, B.; Coker, E.N.; Hersam, M.C.; Secor, E.B. Morphology and electrical properties of high-speed flexography-printed graphene. *Springer, Microchimica Acta*, 2022, 189, 123. <https://doi.org/10.1007/s00604-022-05232-6>
  6. Secor, E.B.; Bell, N.S.; Romero, M.P.; **Tafoya, R.R.**; Nguyen, T.H.; Boyle, T.J. Titanium hydride nanoparticles and nanoinks for aerosol jet printed electronics. *RSC, Nanoscale*, 2022, 14, 12651. <https://doi.org/10.1039/D2NR03571E>

## POSTER PRESENTATIONS

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1. **Tafoya, R.R.**; Kaehr, B.; Secor, E.B. Multimaterial Aerosol Jet Printing of Functionally Graded Nanocomposites. 2019 Annual AIChE Student Conference Poster Presentation. Nov. 8-11<sup>th</sup>, 2019. Orlando, FL.
  2. **Tafoya, R.R.**; Secor, E.B. Digital Fabrication of Compositionally-Graded Nanocomposites using Multimaterial Aerosol Jet Printing. Poster Presentation at the 31<sup>st</sup> Rio Grande Symposium on Advanced Materials. Sept. 16<sup>th</sup>, 2019. Albuquerque, NM.

## PATENT APPLICATIONS

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1. U.S. Patent Application 16/935,823, 2020: Secor, E.B.; Cook, A.W.; Kaehr, B.; **Tafoya, R.R.** Optical Measurement System for Real-Time Process Monitoring of Aerosol Jet Printing.

## TECHNICAL SKILLS

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- *Laboratory Skills for Materials Processing and Characterization:*  
Selective Laser Sintering, Aerosol Jet Printing, Blade Coating, Spray Coating, Plasma Etch, Scanning Electron Microscopy (including sputter coating), 3-D Printing (including stereolithography and fused deposition), Stylus Profilometry, Atomic Force Microscopy, 4-Point Probe Electrical Measurements, Colloidal Metal Oxide Nanocrystal Synthesis, Ligand Stripping Chemistry, Ligand Exchange Chemistry, Electrochemistry/Opto-electronic Testing (ex: Chronoamperometry, Chronopotentiometry, in-situ FTIR Spectroscopy)
- *Programming and Analytical Skills:*  
MATLAB (including Simulink), Python, Java, Arduino, Git, COMSOL, ASPEN Plus, LaTeX, SolidWorks CAD Software, RStudio, LabVIEW, Microsoft Excel, Statistics

## SELECTED HONORS

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UT Austin Cockrell School of Engineering Doctoral Fellowship	<b>2021 – Present</b>
New Mexico Scholars Scholarship	<b>2017 – 2021</b>
UNM School of Engineering Scholarship	<b>2018 – 2021</b>
Tau Beta Pi Engineering Honors Society Member	<b>2020 – Present</b>

## LEADERSHIP AND COMMUNITY INVOLVEMENT

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UT Austin Society of Women Engineers Co-Chair (2022)	<b>2022 – Present</b>
UNM American Institute of Chemical Engineers President (2020), Vice-President (2019), Conference Chair (2018), Car Team Engineer (2019)	<b>2017 – 2021</b>

## TEACHING & MENTORING EXPERIENCE

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Teaching Assistant (Undergraduate Chemical Engineering Statistics), UT Austin Aided in development of exams, homework solutions, and quizzes. Facilitated JMP software assignments for statistical analysis.	<b>Fall 2022</b>
Research Mentor, UT Austin Mentored Austin Community College undergraduate student in research project resulting in poster presentation at UT Austin undergraduate research symposium.	<b>Summer 2022</b>
Teaching Assistant (Undergraduate Transport Phenomenon), UT Austin Developed recitation lesson plan for weekly 2-hour recitations, which consisted of a quiz, worksheet, and help on homework problem set.	<b>Spring 2022</b>
Supplemental Instructor, UNM Center for Academic Program Support Created and hosted extra instruction sessions for the Engineering Calculus 1 class.	<b>Spring 2018</b>

## RESEARCH EXPERIENCE

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<b>Graduate Research Assistant</b> , University of Texas at Austin	<b>2021 – Present</b>
<b>Research and Development Intern</b> , Sandia National Laboratories	<b>2018 – 2021</b>