Andrew Tunell, Ph.D

(214) 846-6990 | AUSTIN, TX
tunellandrew@gmail.com

LinkedIn
Google Scholar
Personal Website

SUMMARY

Ph.D. candidate graduating Summer 2026 specialized in nanostructured surface engineering and thin-film coatings for extreme environments.

EDUCATION

Ph.D. Mechanical Engineering | *University of Texas at Austin* *2021 - Present*
- GPA 3.89/4.00

B.S. | Mechanical Engineering | *University of Texas at Austin* *2017 - 2021*
- GPA 3.38/4.00

EXPERIENCE

NASA Early Stage Innovation (ESI) | Lead Graduate Researcher *Nov. 2024 - Present*
University of Texas at Austin | Prof. Chih-Hao Chang
- Designed and fabricated novel dust-mitigating nanostructured surfaces for applications on the lunar surface.
- Experimentally demonstrated a surface that reversed electrostatic adhesion through nanoscale geometry backed by COMSOL simulations.

NASA SBIR Phase II | Graduate Researcher *Apr. 2022 - Apr. 2024*
University of Texas at Austin | Prof. Chih-Hao Chang
- Evaluated dust adhesion on a surface with respect to environmental conditions including humidity, pressure, and UV exposure.
- Used PVD and vapor phase deposition systems to modify surface geometry and chemistry of nanostructures by novel applications of metal oxides and Silanization.
- Identified charging characteristics of metal oxides and polymer surfaces via electron beam exposure.

NASA SBIR Phase I | Graduate Researcher *May 2022 - Apr. 2022*
University of Texas at Austin | Prof. Chih-Hao Chang
- Created standardized testing procedures for evaluating dust contamination using Confocal and Electron Microscopy.
- Built analysis software for the identification of dust on periodic structures using Fourier transforms.

Nanoparticle Filtration in Hydrophilic Nanostructures | Graduate Researcher *Aug. 2021 - May 2022*
University of Texas at Austin | Prof. Chih-Hao Chang
- Fabricated super-hydrophilic nanostructures via Lloyd's mirror lithography and ICP-RIE etching.
- Used fluorescent microscopy and identified dispersion mechanisms of particle contaminants (when wicked through a nanostructured surface).

Gogentic AI | Program Director *Apr. 2025 - Feb. 2026*
Houston TX | Prof. Ira Greenberg
- Led the integration of creative AI features such as dynamic asset generation for multiple clients.
- Configured Proxmox hypervisor on a Linux based server to deploy virtual machines.
- Hired and managed 12 employees with specialties in computer science.

Introduction to Engineering Research | Mentor *Dec 2026 - Present*
University of Texas at Austin | Prof. Sheldon Landsberger
- Mentored a group of freshmen engineering students at the University of Texas at Austin to research the uniform application of lunar dust simulant in high vacuum.

Mechatronics Lab | Graduate Teaching Assistant *Aug. 2021 - May 2022*
University of Texas at Austin | Dr. Thomas Connolly
- Instructed 60+, 3rd year mechanical engineering students in experiments involving oscilloscopes, diodes, transistors, motors, and more.
- Fabricated 60+ propellers for a final project involving the design of intelligent wind turbines.

AWARDS AND RECOGNITION

- **Virginia and Ernest Cockrell, Jr. Fellowship** : Fellowship in Engineering — August 2021
- **EIPBN Conference Best Student Presentation** : 2nd Place — June 3, 2022
- **Texas Venture Labs Pitch Competition Semi-Finalist**: Nanoscale Labs — April 28, 2023
  - Competition involving 200+ participants
- **Most Bizarre Micrograph**: Zyvex Labs Micrograph Contest (EIPBN) — May 30, 2025
- **TechConnect World Conference Honorable Mention:** Best Student Abstract — March 12, 2026

ACADEMIC PUBLICATIONS

"Investigating the Contributions of Electrostatic and Capillary Effects in Anti-Dust Nanostructures" *April 2026*
- First Author | *Nanotechnology*

"Investigation of electrostatic effects between charged particles and nanostructured surfaces" *December 2025*
- First Author | *Journal of Vacuum Science and Technology B*
- Featured as the main cover article

"Nanoparticle Dispersion and Separation in Superhydrophilic Nanostructures *March 2025*
- First Author | RSC Applied Interfaces
- Featured as the main cover article

"Identification of dust particles on a periodic nanostructured substrate using SEM imaging" *November 2023*
- First Author | *Journal of Vacuum Science and Technology B*

Journal of Vacuum Science and Technology B *December 2025*
Photoresist characterization using a tabletop extreme ultraviolet source at 30 nm wavelength
Ethan Flores, Saurav Mohanty, Richard Mitchell, Andrew Tunell, Mehmet Kepenekci, and Chih-Hao Chang

Material Horizons (Featured on Cover) *February 2025*
Scratch-resistant sapphire nanostructures with anti-glare, anti-fogging, and dust-mitigation properties
Kun Chien, Mehmet Kepenekci, Andrew Tunell, and Chih-Hao Chang

Journal of Vacuum Science and Technology B *November 2023*
Fabrication of Hierarchical Nanostructures Using Binary Colloidal Nanosphere Assembly
Ethan Flores, Saurav Mohanty, Andrew Tunell, and Chih-Hao Chang

ASC Applied Materials and Interfaces (Featured on Cover) *February 2023*
Engineering Large-Area Antidust Surfaces by Harnessing Interparticle Forces
Samuel S. Lee, Lauren Micklow, Andrew Tunell, …, Stephen Furst, and Chih-Hao Chang

SKILLS

Laboratory Training:
Scanning Electron Microscopy (SEM) | Low Voltage SEM | Environmental-SEM | Energy-Dispersive X-ray Spectroscopy (EDX-SEM) | Atomic Force Microscopy (AFM) | Confocal Microscopy | Physical Vapor Deposition (PVD): electron-beam evaporation and sputtering | Atomic Layer Deposition (ALD) | Lloyd's Mirror Lithography | Optical Alignment | Contact Angle Goniometer | Spin Coating | Roll-to-Roll Nanocoining | Ellipsometry | FDM 3D Printing | Clean Room Training | Laser Safety | Machine Shop Certification

Software:
COMSOL | MATLAB | ImageJ | Autodesk Inventor | SolidWorks | LabVIEW | Microsoft Office Suite | Adobe Photoshop | Google Suite | Arduino | Linux CLI | Python | Docker | Proxmox | Kubernetes | Prometheus | Grafana

Relevant Coursework:
Bioinspired Micro/Nanostructures | Analytics and Controls for Semiconductor Manufacturing | Optical Engineering | Optics and Lasers | Nanoscale Energy Transport | High Throughput Nanopatterning

OTHER ACTIVITIES

Senate Messenger: Employee of Texas Senate *Feb 2021 – May 2021*
Deliver messages within Texas Capitol to State Senators and assist with Senate Committee meetings.

Founder Ant Hill Pottery: Founded and managed a ceramics business. *2016 – 2020*
Created ceramics vases, mugs, and artwork, while selling online and shipping orders.

Boy Scouts of America: Eagle Scout *2015*
Organized a community service project to serve Mi Escuelita Preschool in Dallas, Tx