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**EDUCATION**

<b>Ph.D.</b>	The University of Texas at El Paso	Materials Science and Engineering	Dec 2010
<b>M.S.</b>	The University of Texas at El Paso	Industrial Engineering	Aug 2003
<b>B.E.</b>	The University of Mumbai, India	Production Engineering	June 2001

**EXPERIENCE**

The University of Texas at El Paso	Associate Professor	Department of Industrial Manufacturing and Systems Engineering	Sep 2024 – Present
The University of Texas at El Paso	Assistant Professor	Department of Industrial Manufacturing and Systems Engineering	Sep 2018 – August 2024
TMAC - Paso del Norte	Regional Director	Research Institute for Manufacturing and Engineering Systems (RIMES)	Jul 2017 – Present
The University of Texas at El Paso	Research Assistant Professor	Research Institute for Manufacturing and Engineering Systems (RIMES)	Feb 2011 – Jun 2017

**SPONSORED RESEARCH ACTIVITY****Proposals Funded - Current**

1. "Strengthening DOD Supply Chain through Advanced Manufacturing Technology Services," Department of Defense (DoD) OLDCC Grant, **\$100,000**, 7/2023 – 03/2026, **PI (80%)**
2. "EMS Training – Identifying Environmental and Health Hazards in Manufacturing," Environmental Protection Agency, **\$82,500**, 9/1/2023 – 8/31/2028, **PI (80%)**
3. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$355,000**, 7/1/2024-6/1/2025, **Co-PI (50%)**

### **Proposals Funded - Completed**

1. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$355,000**, 7/1/2023-6/1/2024, **Co-PI (50%)**
2. "Sustainable Smart Technology Reduction," Environment Protection Agency – University of Texas Arlington, **\$22,800**, 10/1/2022 - 9/30/2024, **PI (100%)**
3. "A Smart Manufacturing Implementation and Workforce Development Framework for Underserved Small Medium Manufacturers," Clean Energy Smart Manufacturing Innovation Institute (CESMII), Department of Energy, **\$150,000**, 7/1/2023 – 12/31/2023, **PI (40%)**
4. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$367,229**, 7/1/2022-6/1/2023, **Co-PI (50%)**
5. "Pandemic Response Support for Regional Economic Development," US EDA Scaling Pandemic Resilience through Innovation and Technology (SPRINT) Product and Supplier Development Lab, Department of Commerce, **\$225,000 (Federal)**, 4/15/2021-4/30/2023, **PI (100%)**
6. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$277,229**, 7/1/2021-6/1/2022, **Co-PI (50%)**
7. "Smart Manufacturing for Small and Medium Manufacturers in a Predominantly Hispanic Workforce Region," Clean Energy Smart Manufacturing Innovation Institute (CESMII), Department of Energy, **\$263,376 (Federal)**, 2/1/2021 – 05/31/2022, **PI (40%)**
8. "E3 – Economy, Energy and Environment", Environment Protection Agency – University of Texas Arlington, **\$24,000**, 10/1/2020-9/30/2022, **PI (100%)**
9. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$277,229**, 7/1/2020-6/1/2021, **Co-PI (50%)**
10. "Dashboards for Manufacturing Capabilities during Pandemic," US Department of Commerce – City of El Paso, **\$55,000**, 6/15/2020-11/30/2020, **Co-PI (25%)**
11. "Covid-19 Personal Protective Equipment Supply Chain Development", US Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$163,747**, 6/15/2020-9/30/2021, **Co-PI (50%)**
12. "Advanced Manufacturing Technology Services – Smart Manufacturing," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$150,000**, 4/1/2020-10/31/2022, **PI (100%)**
13. "Industrial Simulations and Project Management – Marvin Engineering," Lockheed Martin Corporation (LMC) Aeronautics, **\$94,454**, 5/2/2019-3/31/20, **Co-PI (50%)**
14. "Texas Manufacturing Assistance Center - Paso del Norte," Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$300,000**, 7/1/2019-6/1/2020, **Co-PI (50%)**
15. "E3 – Economy, Energy and Environment", Environment Protection Agency – University of Texas Arlington, **\$18,000**, 10/1/2018-9/30/2020, **PI (100%)**
16. "Texas Manufacturing Assistance Center - Paso del Norte," US Department of Commerce - National Institute of Standards and Technology - University of Texas Arlington, **\$281,000**, 7/1/2018-6/1/2019, **Co-PI (50%)**

17. "New Manufacturing Technology Development and Implementation – Marvin Engineering," Lockheed Martin Corporation (LMC) Aeronautics, **\$103,600**, 5/8/2018-3/31/19, **Co-PI (50%)**
18. "Workforce Training and Development – Training Within Industry," Illinois Manufacturing Excellence Center, 2018, **\$9,000**, **PI (100%)**
19. "Warehousing Optimization - Gamma Aerospace," Lockheed Martin Corporation (LMC) Aeronautics, **\$33,000**, 4/1/2018-3/31/19, **Co-PI (50%)**

#### **TEACHING ACTIVITY (Average Teaching Evaluation Score: 4.7/5.0)**

1. ***IE 3373 - Engineering Probability and Statistical Models***; Undergraduate level; Fall 2024, Spring 2024, Fall 2023, Spring 2023, Fall 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Spring 2020, Fall 2019, Spring 2019, Fall 2018.
2. ***SE 5344 - Systems Engineering – Integration Verification and Validation***; Graduate level; Fall 2024, Spring 2024, Fall 2023, Spring 2023, Fall 2022, Summer 2022, Spring 2022, Fall 2021, Spring 2021, Fall 2020, Summer 2020, Spring 2020, Summer 2019, Summer 2018, Fall 2017, Summer 2017, Spring 2017, Spring 2016, Fall 2015, Spring 2014, Fall 2013
3. ***MFG 5390 - Manufacturing Engineering Special Topics***; Graduate level; Fall 2020, Spring 2019, Fall 2015, Fall 2014
4. ***UNIV 1301 - Foundations of Engineering***; Undergraduate level; Fall 2019, Fall 2018, Fall 2017, Fall 2016, Fall 2015
5. ***MFG 5311 - Design for Manufacturability***; Spring 2017, Spring 2016, Spring 2015, Spring 2014, Spring 2013
6. ***SE 5345 – Systems Engineering Project Practicum***; Summer 2013

#### **SYNERGISTIC ACTIVITIES**

**Journal Article Reviewer:** Additive Manufacturing Journal, Rapid Prototyping Journal, Journal of Materials Processing Technology, International Journal of Industrial Ergonomics

**Conference Paper Reviewer:** Solid Freeform Fabrication Symposium, American Society for Engineering Education Conference, Institute of Industrial and Systems Engineering Conference

**Certified in 'Teaching Online'** by the Teaching Online Academy at Academic Technologies in UTEP

#### **AWARDS AND HONORS**

- UTEP EDGE Curriculum Fellow, 2023-24
- 'Dean's Award for Excellence in Research,' May 2022
- STEM Accelerator Faculty Partner Award – 2016, 2017
- 'Outstanding Paper Award' by Rapid Prototyping Journal at the 2013 Literati Network Awards for Excellence for article entitled "Integrating stereolithography and direct print technologies for 3D structural electronics fabrication"
- 'Highly Commended Award' at the 2012 Emerald Engineering Outstanding Doctoral Research Awards in the 'Additive Manufacturing' category
- 'Dodson Dissertation Fellowship' Award Recipient – 2009

#### **LIST OF PUBLICATIONS**

##### **Journal Articles**

- Lopes A., Rivas J., Taylor H., Orquiz, C., & Wicker R. (2024). Measurement systems analysis for Beam Compensation, Scaling factors and Geometric Dimensioning for a Metallic

Additively Manufactured Test Artifact. *Progress in Additive Manufacturing*, <https://doi.org/10.1007/s40964-024-00786-8>

- Banik, D., Madathil, S., Luna, S., & Lopes, A. (2024). Evaluation of Maternal Patient Experience through Natural Language Processing Techniques: The Case of Twitter Data in the United States during Covid-19. *Applied Sciences*. 2024; 14(19):8762. <https://doi.org/10.3390/app14198762>
- Sepulveda, D., Gutierrez, P., Lopes, A., Rome, J., Goyal, V., & Espalin, D. (2023). Ultrasonically Embedded Wires in Multi-Material Parts Produced by Hybrid Additive Manufacturing. *Additive Manufacturing*. Volume 73, <https://doi.org/10.1016/j.addma.2023.103662>
- Estupinán-López, F., Orquiz-Muela, C., Gaona-Tiburcio, C., Cabral-Miramontes, J., Bautista-Margulis, R.G., Nieves-Mendoza, D., Maldonado-Bandala, E., Almeraya-Calderón, F. & Lopes, A.J. (2023). Oxidation Kinetics of Ti-6Al-4V Alloys by Conventional and Electron Beam Additive Manufacturing. *Materials* (16), 1187. <https://doi.org/10.3390/ma16031187>
- Akundi, A., Euresti, D., Luna, S., Ankobiah, W., Lopes, A., & Edinbarough, I. (2022). State of Industry 5.0—Analysis and Identification of Current Research Trends. *Applied Systems Innovation*. 5 (1), 27
- Lopes, A., Perez, M., Espalin, D., & Wicker, R. (2020). Comparison of ranking models to evaluate desktop 3D printers in a growing market. *Additive Manufacturing*, 35, 101291.
- Lopes, A., Lee, I., MacDonald, E., Quintana, R., & Wicker, R. (2014). Laser curing of silver-based conductive inks for in situ 3D structural electronics fabrication in stereolithography. *Journal of Materials Processing Technology*, 214 (9), 1935-1945.
- Lopes, A., MacDonald, E., & Wicker, R. (2012). Integrating stereolithography and direct print technologies for 3D structural electronics fabrication. *Rapid Prototyping Journal*. 18 (2), 129–143
- Pennathur, A., Lopes, A., & Contreras, L. (2003). Aerobic capacity of young Mexican American adults. *International Journal of Industrial Ergonomics*, 35 (1), 91–103.

### Conference Proceedings

- Rahman, M., Akundi, A., Sultana, J., Tseng, T., Luna, S., & Lopes, A. (2023). Exploring Systems Performance Using Modeling and Simulation – Project-based Study and Teaching. *ASEE Annual Conference Proceedings*.
- Akundi, A., Edinbarough, I., Rahman, M., Lopes, A., & Luna, S. (2023). Exploring Student Learning Experience of Systems Engineering Course Developed for Manufacturing and Industrial Engineering Graduates. *ASEE Annual Conference Proceedings*.
- Lopes, A., Renteria Marquez, I., Rahman, F., Tseng, T., & Luna, S. (2022). Smart Manufacturing for Underserved Workforce Development. *ASEE Annual Conference Proceedings*.
- Luna, S., Lopes, A., Bahabry, A., & Akundi, A. (2022). Trends of Systems Engineering Job Postings and their Implications for Curriculum Development. *2022 ASEE Annual Conference Proceedings*
- Banik, D., Niemsakulb, J., Ransikarbum, K., Lopes, A., & Madathil, S. C. (2022). Data-driven decision making for predicting products' unmet demand in a blood products supply chain. *IIE Annual Conference Proceedings*
- Rascon, A., Hossain, N., Kotteda, V., Harris, C., Janssen, H., Dudley, E., Kumar, V., & Lopes, A. (2022). Designing an Experimental Setup for Analyzing the Flow through a 3D

Printed Venous Valve System from Arthroscopic Images. *Proceedings of the ASME 2022 Fluids Engineering Division Summer Meeting*

- Lopes A., Rivas J., Taylor H., Valles J., & Wicker R. (2022). Laser Powder Bed Fusion (LPBF) Artifact Evaluation Based on Standardized Geometric Dimensioning and Tolerancing (GD&T) Methods. *IISE Annual Conference Proceedings*
- Manzanares, C. & Lopes, A. (2022). Relationship between Collaborative Robot Assembly and Quality. *IISE Annual Conference Proceedings*
- Madathil, C., Alfred, M., & Lopes, A. (2020). Patient Journey Mapping: A Literature Review. *of the 2020 IISE Annual Conference Proceedings*
- Tseng, T., Rahman, M., Chiou, R., Renteria, I., Akundi, A., Senthilkumar, J., & Lopes, A. (2020). Embedding Computer Simulation Based Classroom Activities to Enhance the Learning Experience for Manufacturing Systems. *2020 ASEE Virtual Annual Conference Proceedings*
- Lopes, A., Ramos, L., Saenz, D., Morton, P., Terrazas, C., Choudhuri, A., & Wicker, R. (2019). Analysis of Powder Removal Methods for EBM Manufactured Ti-6AL-4V Parts. *2019 Solid Freeform Fabrication Symposium Proceedings*
- Tseng, B., Lopes, A., Huang, C., Chiou, R., Kim, H., & Akundi, A. (2017). SCARA Robot Parameter Evaluation for Embedding Structured Electronics Using Design of Experiments (DOE). *Proceedings of the 2017 Industrial and Systems Engineering Conference*

#### **SELECT PRESENTATIONS:**

- Presenter, Clean Energy Smart Manufacturing Innovation Institute (CESMII) – Education and Workforce Development Projects – Cross Pollination Workshop. “Smart Manufacturing for Small and Medium Manufacturers in a Predominantly Hispanic Workforce Region.” February 2022
- Invited Speaker, Smart Manufacturing Summit - 2021, Panel Discussion: 12 Industry Leaders Sharing their Smart Manufacturing Insights. “Smart Manufacturing for Underserved Small and Medium Manufacturers.” December 2021
- Webinar – 6<sup>o</sup> of Smart Manufacturing - Increasing the Smart Manufacturing Talent Pool and its Diversity. “Increasing Opportunities and Diversity in SM for SMMs.” August 2021
- Invited Speaker, International Council on Systems Engineering (INCOSE) Enchantment Chapter Speaker Series Webinar, “Service Systems Engineering.” November 2013
- “Hybrid Manufacturing: Integrating Direct Write and Stereolithography,” at the *16th Annual Solid Freeform Fabrication Symposium*, University of Texas at Austin, 2005, Austin, TX, USA.

#### **CURRICULUM DEVELOPMENT**

1. Led the development of a smart manufacturing curriculum by updating four existing courses to include smart manufacturing specific modules: MFG 5314 - Robotics and Flexible Automation; IE 5390 - Special Topics: Data Visualization; MFG 5312 - Strategic Design of Manufacturing Systems; and IE 5390 - Industrial Data Analytics
2. Got approval to offer the graduate certificate as part of Graduate Program Director duties using Smart Manufacturing concepts.

#### **THESIS/DISSERTATION ADVISOR**

## **Graduate Students Completed**

### **Ph.D. Students**

- Jesus Rivas Escarcega, “Geometric and Surface Texture Characterization for Laser Powder Bed Fusion Process,” Summer 2023

### **M.S. Students**

- Asif Sharon, “Optimizing Pick-and-Place Operations in Process Automation”, Summer 2024
- Shankar Perumal, “Energy Optimization in Industrial Pneumatic Processes” Spring 2024
- Debapriya Banik, “Evaluation of Maternal Patient Experience During Covid-19 Using Natural Language Processing,” Spring 2023
- Priscila Balanzar, “Digitizing Work Instructions Through Technology Using Internet of Things (IoT),” Spring 2023
- Erick Rosales, “Challenges, Limitations, and Strengths For Optimal Predictive Maintenance Application,” Spring 2023
- Carlos Manzanares, “Productivity and Quality Evaluation in Assembly using Collaborative Robots,” Fall 2022
- Amit Kumar Saha, “Simulation of Pizza Operations under Uncertain Supply Chain Scenarios,” Fall 2022
- Rene Dominguez, “Comfort Evaluation of a Customized Additively Manufactured Headset,” Summer 2022
- Luis Ramos, “Analysis of Powder Removal Methods for EBM TI-6AL-4V Parts”, Fall 2020

## **Current Graduate Students**

### **Ph.D. Student**

- Juan del Real Gonzalez, “Digital Twin Applications in Robotics”

### **M.S. Students**

- Abukabar Siddique, “IoT Application in Environment Monitoring in Manufacturing”
- Shaunak Aital, “Optimization Techniques in AR Applications”
- Fahim Mohsin, “IoT Applications in Preventive Maintenance”
- Ricardo Cardenas, “Quality Assurance in Robotic and Automation”

## **SERVICE**

- UTEP Graduate Scholarship Committee – IMSE Department Representative
- Member - College of Engineering Research Committee
- Member – UTEP Community Engagement Council
- Undergraduate Curriculum Committee – IMSE Department First Alternate Representative
- Workforce Solutions Borderplex – Economic Development Group Member
- Bi-national Technology Council Member
- Future of Work Committee Member
- University Faculty Marshal of Students – UTEP Spring Commencement 2022
- UTEP College of Engineering – Dean Search Committee Member Fall 2021
- IMSE Department Tenure Track Faculty Search – Fall 2019, Spring 2020, and Fall 2021
- Faculty Marshal of Students – UTEP Fall Commencement 2017
- IMSE Day Conference Organizing Committee – 2016-Present