

Curriculum Vitae
Ciro Ramirez, PhD, PE, CSHO
Thornhill, Ramirez & Associates, Inc.
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Fields of Specialization

Vehicular accident reconstruction, structural analysis, shock and vibration, mechanical design of products and machinery, product and workplace safety.

Experience

Thornhill, Ramirez & Associates, Inc. (1996 - present), Forensic Mechanical Engineer

- * Mechanical, structural, dynamic and safety analysis for product liability cases
- * Vehicular collision reconstruction

IBM Corporation (1974 – 1999), Senior Engineer

- * Analysis of electronic packaging structures at system and component level using finite element methods for static, dynamic, and thermal loadings. Design of computer system mechanical components for safety, reliability, usability, ruggedness, and mechanical functionality. Leadership and participation in corporate task forces to identify and eliminate quality defects in design and manufacturing
- * Management of shock and vibration test laboratory. Test plans, supervision of test technicians, specialized testing, modernization of equipment and procedures, ISO9000 compliance
- * Development of tools and processes for electronic card manufacturing and assembly.
- * Leadership of a product mechanical design team as lead engineer and department manager. Design of electromechanical control systems and advanced servo/stepper motor systems

Professional Licenses, Accreditations and Honorary Societies

Licensed and Registered Professional Engineer, Texas No. 56584, Mississippi No. 14623

Certified Safety and Health Official (CSHO) in both General Industry and Construction

Accredited Traffic Accident Reconstructionist, ACTAR # 1143

Member, American Society of Mechanical Engineers (ASME)

Member, Society of Automotive Engineers (SAE)

Member, American Society of Safety Engineers (ASSE)

Member, National Association of Professional Accident Reconstruction Specialists (NAPARS)

Member, Texas Association of Accident Reconstruction Specialists (TAARS)

Member of Tau Beta Pi and Phi Kappa Phi Honor Societies

Listed in Marquis Who's Who and United Who's Who

Awards, Publications and Patents

Ten U. S. Patents, 14 IBM Technical Disclosure Bulletins

Two IBM Outstanding Innovation Awards, two Invention Awards, two Technical Author

Recognition Awards, Achievement Conference Attendee

Five refereed journal articles, five conference papers and numerous technical reports

Education and Training

Ph.D. in Mechanical Engineering, University of Texas, 1991

Master of Mechanical Engineering, Rice University, 1974

B. S. in Mechanical Engineering, Rice University, 1973

Training provided by Texas Engineering Extension Service, Texas A&M University System:

- * Advanced Accident Reconstruction, 1998

- * Advanced Commercial Vehicle Inspection and Collision Investigation, 1999

- * OSHA Southwest Education Center series in construction and general industry workplace safety topics, including hazardous materials, machinery and machine guarding standards, confined space, excavation and trenching, electrical standards, fall arrest, and other topics

Vehicle Dynamics course taught by Engineering Dynamics Corporation, 2001

Role of Warnings and Instructions, University of Wisconsin, 2009

Advanced Human Factors in Traffic Crash Reconstruction, Northwestern University Center for Public Safety, 2011

Numerous TAARS seminars in accident reconstruction, heavy trucks, and related topics.

IBM University Level Computer Science Series (B.S. equivalent), 1986

Numerous seminars and short courses on structural and vibration analysis

Patents and Invention Publications

- 1) J. S. Corbin, D. R. Polk and C. N. Ramirez, *Method and Apparatus for Controlling Escapement*, U. S. Patent 4589790.
- 2) C. N. Ramirez, *Rotational Magnetic Transducer*, U. S. Patent 4406983.
- 3) J. S. Corbin and C. N. Ramirez, *Apparatus for Attaching Heatsink*, U. S. Patent 5713690.
- 4) R. C. Dockerty, R. M. Fraga, C. N. Ramirez, S. K. Ray, C. L. Reynolds, Jr., and G. J. Robbins, *Structurally Reinforced Ball Grid Array Semiconductor Package and Systems*, U. S. Patent 5796169.
- 5) J. A. Garza, D. M. Kent, C. N. Ramirez, and R. R. Sinha, *Heatsink Retention and Air Duct Assembly*, U. S. Patent 5910884.
- 6) D. M. Neal, J. R. Taylor, W. D. Scott, and C. N. Ramirez, *Mechanism for Inserting or Removing I/O Cards with Internal Connectors*, U. S. Patent 5967824.
- 7) D. M. Neal, J. R. Taylor, W. D. Scott, and C. N. Ramirez, *Mechanism to Assist in Insertion or Removal of PCI Cards*, U. S. Patent 5980281.
- 8) R. C. Dockerty, R. M. Fraga, C. N. Ramirez, S. K. Sudipta, and G. J. Robbins, *Column Grid Array Substrate Attachment with Heat Sink Stress Relief*, U. S. Patent 6053394.
- 9) S. M. Christensen, M. P. Pierce, and C. N. Ramirez, *Card Stiffener Optimized for Connector Engagement*, U. S. Patent 6094358.
- 10) R. C. Dockerty, R. M. Fraga, C. N. Ramirez, S. K. Ray, and G. J. Robbins, *Column Grid Array Substrate Attachment with Heat Sink Stress Relief*, U. S. Patent 6395991.

IBM Technical Disclosure Bulletin Publications:

- 1) *Mechanism for Inserting I/O Cards with Bottom-Card I/O Connectors*
- 2) *Heatsink Mounting Method*
- 3) *Heatsink Attachment for Improved EMC and Shock Performance*
- 4) *Diagonal Grille Pattern for Improved Product Fragility*
- 5) *Integral Door and Earthquake Brace*
- 6) *Anti-sway Device for RISC/6000 Systems*
- 7) *Hybrid Thermode for Solder Attach*
- 8) *Bearing Alignment and Installation Technique Using Radiation Curable Adhesive*
- 9) *Low Cost Paper Feed*
- 10) *High Reliability, Low Cost Limit Switch*
- 11) *Ribbon Plate Lift-Motor Pull-back Mechanism*
- 12) *High Sensitivity Sensor Adjustment*
- 13) *High Quality Horizontal Registration From a Daisy Wheel Printer*
- 14) *High Output Reluctance Sensor*

Publications

- 1) Ciro Ramirez and R. Joe Thornhill, "Modeling a Pothole Impact of an Agricultural Tractor Using HVE and SIMON," HVE White Paper HVE-WP-2011-1, presented at the HVE Forum, Scottsdale, Arizona, 2011.
- 2) Joe Thornhill, Ciro Ramirez, and C. L. "Marty" Long, "Night-time Visibility Studies and Digital Photography," presented at the F3T2 Conference, Houston, September 2006.
- 3) Muttart, J., Vanderberg, G., Yosko, M., Connelly, J., Adamson, K., Moebes, T., Lohf, D., Thornhill, J., Long, M. & C. Ramirez, "Pedestrian recognition distances at night," presented at the F3T2 World Reconstruction Exposition, Houston, Texas, September 2006.
- 4) R. J. Thornhill, C. N. Ramirez, and C. L. Long, Jr., "Forensic Engineering Case Studies of Machinery Product Designs," presented at the ASME 2002 International Congress & Exposition, New Orleans, November 2002.
- 5) J. S. Corbin, C. N. Ramirez, and D. E. Massey, "Land grid array sockets for server applications," *IBM Journal of Research and Development*, Vol. 46, No. 6, November 2002.
- 6) C. N. Ramirez, J. S. Corbin, R. Bargerhuff, and K. Langston, "Development of a Large Heatsink Support Structure," *Proceedings of NEPCON Texas '97*, Dallas, October 1997.
- 7) C. N. Ramirez and J. Villarreal, "Mechanical Engineering in Electronic Packaging," *Proceedings of the National Technical and Careers Conference*, Seattle, February 1996.
- 8) Barker, R., M. Hinich, G-A. Klutke, C. N. Ramirez, and R. J. Thornhill, "Development and Application of a Statistically Based Feature Extraction Algorithm for Monitoring Tool Wear in Circuit Board Assembly," *Circuits, Systems and Signal Processing*, Vol. 13, No. 4, 1994.
- 9) Hinich, M., R. W. Barker, G-A. Klutke, C. N. Ramirez, and R. J. Thornhill, "Time Series Pattern Recognition for Monitoring Rotating Machinery Condition," The University of Texas, Applied Research Laboratories Technical Paper No. 91-21 (ARL-TP-91-21), 1993.
- 10) J. S. Corbin and C. N. Ramirez, "Shock Simulation for RISC System/6000 Workstations," IBM Technical Report TR-51.0798, October 1993.
- 11) C. N. Ramirez and R. J. Thornhill, "Automated Measurement of Flank Wear of Circuit Board Drills," *ASME Journal of Electronic Packaging*, Vol. 114, No. 1, pp. 93-96, March 1992.
- 12) C. N. Ramirez and R. J. Thornhill, "Drill Wear Monitoring in Circuit Board Manufacturing Using Drilling Forces and Their Spectra," *ASME Journal of Electronic Packaging*, Vol. 114, No. 3, pp. 342-348, September 1992.
- 13) C. N. Ramirez and R. J. Thornhill, "Drill Wear Monitoring in Circuit Board Manufacturing: An Experimental Study," *ASME Journal of Electronic Packaging*, Vol. 114, No. 3, pp. 360-364, September 1992.
- 14) J. S. Corbin and C. N. Ramirez, "SMT Automated Inspection: A Technology Overview," IBM Technical Report TR-51.0441, February 1988.