



Mohan Varma D. S.
Assistant Professor (Sr.)
CBCMT, VIT Vellore

I am interested in Bio-mechanics of Human Movement, Rehabilitation Engineering, Product Development in the field of Assistive Devices.

Projects:

Completed: None

Ongoing: Design and Development of an Affordable Gait Training Device. Funded by TIDE Program, SEED Division of DST.

Publications

- Vivek Sarada, Swostik Sourav Dash, D. S. Mohan Varma, Javeed Shaik-Mohammed & S. Sujatha (2021) Design of a low-cost, reconfigurable, standing wheelchair with easy and stable sit-stand-sit transition capability, *Disability and Rehabilitation: Assistive Technology*. <https://doi.org/10.1080/17483107.2021.1978564>
- Vinay, V. C., Varma, D.S.M., Chandan, M.R. *et al.* Study of castor oil-based auxetic polyurethane foams for cushioning applications. *Polymer International*. (2021) <https://doi.org/10.1002/pi.6259>
- Vinay, V. C., Varma, D.S.M., Chandan, M.R. *et al.* Study of silver nanoparticle-loaded auxetic polyurethane foams for medical cushioning applications. *Polym. Bull.* (2021). <https://doi.org/10.1007/s00289-021-03705-x>
- V Chaithanya Vinay, KV Mohan Kumar, DS Mohan Varma, “Mathematical modeling of auxetic foams”. *Materials Today: Proceedings* (2021). <https://doi.org/10.1016/j.matpr.2021.03.736>
- Chaithanya Vinay, V., Mohan Varma, D.S. Fabrication and Testing of Auxetic Foams for Rehabilitation Applications. *J Indian Inst Sci* **99**, 511–518 (2019). <https://doi.org/10.1007/s41745-019-00122-y>
- D. S. Mohan Varma and S. Sujatha, “Segmental contributions to the ground reaction force in single support phase of gait”. *Mechanical Sciences*, **5**, 37-52, 2014. <https://doi.org/10.5194/ms-5-37-2014>
- D. S. Mohan Varma and S. Sujatha, “Segmental contributions to the movement of the center of mass in normal gait” *Applied Mathematical Modelling*, **46**, 328-338, 2017. <https://doi.org/10.1016/j.apm.2017.01.075>

Book Chapter

- Varma D.S.M. (2021) Synthesis and Analysis of Jansen's Leg-Based Mechanism for Gait Rehabilitation. In: Sen D., Mohan S., Ananthasuresh G. (eds) Mechanism and Machine Science. Lecture Notes in Mechanical Engineering. Springer, Singapore.
https://doi.org/10.1007/978-981-15-4477-4_22

Conference Publications / Posters

- **D. S. Mohan Varma** and S. Sujatha, "Minimal kinematic model for inverse dynamics analysis of gait", *Proceedings* of the ASME 2014 International Mechanical Engineering Congress and Exposition, Nov. 14-20, 2014, Montreal, Canada.
- **Seshadri Mohan D.**, Komistek R.D., Mahfouz .M.R., Douglas A Dennis., and Mathew R. Anderle, "In vivo kinematics for subjects implanted with either a metal-on-metal or ceramic-on ceramic THA", *Poster* Presentation, ORS2009-2552, 55th Annual Meeting of the Orthopedic Research Society, February 22-25, 2009, Las Vegas, Nevada.
- **Seshadri Mohan D.**, Komistek R.D., Mahfouz .M.R., and Douglas A Dennis, "In Vivo contact stresses for subjects implanted with metal-on-metal and ceramic-on ceramic THAs", *Poster* Presentation, ORS2009-3290, 55th Annual Meeting of the Orthopedic Research Society, February 22-25, 2009, Las Vegas, Nevada.
- **Mohan Damu** and Arnold Lumsdaine, "Determination of optimal orientations and volume fractions of nanotubes in a polymer for vibration damping", *Proceedings* of the Adaptive Structures and Material Systems Symposium of the 2006 ASME International Mechanical Engineering Congress and Exposition, Chicago, IL 2006.
- **Mohan Damu** and Arnold Lumsdaine, and Parsons M., "Optimization of Carbon Nanotube Reinforced Composite Laminated Structures for Vibration Damping," *Proceedings* of the SPIE 12th Annual Symposium on Smart Structures and Materials, San Diego, CA. March 2005.
- **Mohan Damu** and Arnold Lumsdaine, "Topology Optimization of Carbon Nanotube Reinforced Damping Layers", *Proceedings* of the Adaptive Structures and Material Systems Symposium of the 2005 ASME International Mechanical Engineering Congress and Exposition, Orlando, FL November 2005.

Patents

- Mohan Varma, D. S., Chaithanya Vinay, V., and Mohammed Rehaan Chandan, 2021, A composition of antibacterial and biodegradable auxetic foams for medical cushions. Indian Patent (App. No. 202141055400). Patent Filed (Nov. 2021).

Research Student:

PHD

V. Chaithanya Vinay, Phd Student

Suprith Gowda, JRF on DST Funded Projects

Clinton Wilson, PhD Student

Btech

Rudramoorthy – Working on Kinematics of Hip Joint

Addyay Banerjee – Working on Study of Satellite Stability for Capstone Project.