



## Aman Gupta

**Ph.D.**

### Senior Managing Biomechanist

#### Department

Accident Reconstruction & Forensic Animation

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#### Locations

Philadelphia, PA  
New York, NY

## Biography

Aman Gupta began working in the area of Orthopedic Biomechanics in 2006 as a scientific researcher that included assessment of knee and shoulder joint loading biomechanics, connective tissue characterization, device evaluation studies, and development and refinement of advanced quantitative MRI techniques for non-invasive characterization of tendon and ligament structure. In 2012, he transitioned into forensic accident reconstruction and injury biomechanics consulting with his investigations focusing on injury assessment and injury consistency analysis in low-speed motor vehicle accidents, slip, trip and fall accidents, and occupational accidents. In particular, Aman has worked on assignments involving reconstruction of motor vehicle accident dynamics and determination of the occupant kinematics, injury consistency and mechanisms of injury; seatbelt restraint use/evaluation; kinematic analysis of human gait in slips, trips, and falls; balance recovery responses to loss of balance; foot placement/clearances and slip, trips and falls on stairs; human reaction times and gaze behavior during ambulation in different environments; kinematic analysis of human ambulation from surveillance videos; impact analysis from falling objects, among others.

## Credentials

- Ph.D. | Doctor of Philosophy
- Bosch® CDR Tool Technician
- Event Data Recorder Analyst

## Representative Consulting Assignments

- Reconstruction of low-speed motor vehicle accident dynamics including rear-end, frontal, sideswipes and multi-vehicle collisions.
- Determine motions and mechanisms to which the occupant would have been subjected in relation to the injuries claimed.
- Evaluated shoulder injury consistency claim from an alleged contact from a closing train door.
- Evaluated the use of seatbelt restraint and analyzed its effect on a rear seat occupant in a frontal crash with an electric utility pole.
- Analyzed child booster seat requirement for a child involved in an ejection.
- Evaluated human kinematics of an alleged trip and fall from tablecloth entanglement when the individual attempted to get up from the chair.
- Evaluated human kinematics in an alleged trip and fall on a sidewalk.
- Assessed tread depth requirement on stairs based on human anthropometry in a claim of insufficient tread depth.
- Injury assessment and injury consistency in several cases where an object/ceiling tile fell on an individual resulting in alleged head, neck, and back injuries.
- Evaluated claim of plantar fasciitis foot injury/condition resulting from an alleged defect in the individual's shoe.
- Evaluated balance recovery responses in slips and trips in different environments.
- Assessed minimum toe clearance requirements to safely traverse a surface

with or without obstacles.

- Gait evaluation of an alleged intoxicated claimant to differentiate between a fall or suicide attempt resulting in drowning.

## Professional Experience

- 2023 - Current | Senior Managing Engineer | YA Engineering Services
- 2019 - 2023 | Senior Consultant | Rimkus
- 2014 - 2019 | Biomechanical Engineering Consultant | Affiliated Engineering Laboratories
- 2012 - 2014 | Consultant | Origin Forensics

## Area of Practice

- Biomechanics
- Accident Reconstruction
- Human Factors
- Litigation Support
- Premises Liability

## Publications and Presentations

- 2018 - Guidetti M, Zampini MA, Gandini G, Gupta A, Li W, Magin RL, Wang VM., Diffusion Tensor Imaging of Tendons and Ligaments at Ultra-High Magnetic Fields., Critical Reviews™ in Biomedical Engineering, 2018
- 2013 - Salata MJ, Sherman SL, Lin EC, Sershon RA, Gupta A, Shewman E, Mcill KC, Wang V, Romeo AA, Cole BJ, Verma NN. , "Biomechanical Evaluation of Trans-Osseous Rotator Cuff Repair: Do Anchors Really Matter?", American Journal of Sports Medicine
- 2012 - Ghodadra N, Gupta A, Goldstein JL, Verma N, Bach BR, Romeo AA, Provencher MT., "Paper 88: Normalization of Glenohumeral Articular Contact Pressures after either Latarjet or Iliac Crest Bone Grafting Procedure: Impact of Graft Type and Position" , Arthroscopy: The Journal of Arthroscopic & Related Surgery
- 2011 - Van Thiel GS, Frank RM, Gupta A, Ghodadra N, Shewman EF, Bach BR, Verma N, Cole BJ, Provencher M. , "Biomechanical evaluation of a High Tibial Osteotomy with a Meniscal Transplant." , Journal of Knee Surgery
- 2010 - Gupta A, Li W, Stebbins GT, Magin RL, Wang VM., "High Resolution Diffusion Tensor MRI of Rabbit Tendons and Ligaments at 11.7 T", Proceedings of International Society of Magnetic Resonance in Medicine
- 2010 - Ghodadra N, Gupta A, Goldstein JL, Verma N, Bach BR, Romeo AA, Provencher MT. , "Normalization of glenohumeral articular contact pressures after either Latarjet or iliac crest bone grafting procedure: impact of graft type, position, and coracoid orientation." , Journal of Bone and Joint Surgery [Am]
- 2009 - Gupta A, Lettermann C, Busam M, Riff A, Bach BR, Jr., Wang VM., "Biomechanical Evaluation of Bioabsorbable Versus Metallic Screw for PCL Inlay Graft Fixation: A Comparative Study." , American Journal of Sports Medicine
- 2009 - Park DK, Fogel H, Bhatia S, Gupta A, Shewman EF, Wang VM, Bach B, Verma N, Provencher M., "Tibial Fixation of Anterior Cruciate Ligament Allograft Tendons: Comparison of One, Two, and Four Stranded Constructs." , American Journal of Sports Medicine
- 2009 - Verma NN, Ghodadra N, Goldstein JL, Gupta A, Shewman EF, Bach BR, Romeo AA, Provencher MT., "Normalization of Glenohumeral Articular Contact Pressures after either Latarjet or Iliac Crest Bone Grafting

Procedure: Impact of Graft Type, Position, and Coracoid Orientation (SS-12)", Arthroscopy: The Journal of Arthroscopic & Related Surgery

## Education

- University of Illinois - Doctor of Philosophy - Bioengineering - Chicago - Illinois
- Panjab University - Bachelor of Engineering - Biotechnology - Punjab - India
- American Society for Testing and Materials - Workshop on Multifactorial Analysis of Slip and Fall Events - 2015
- Society of Automotive Engineers - Vehicle Crash Reconstruction: Principles and Technology - 2018
- Northwestern University Center For Public Safety - Traffic Crash Investigation 1 - 2019
- Northwestern University Center For Public Safety - Traffic Crash Investigation 2 - 2019
- Institute of Police Technology and Management at University of North Florida - Bosch® CDR Tool Technician Training by IPTM - 2021
- Institute of Police Technology and Management at University of North Florida - Event Data Recorder Use in Traffic Crash Reconstruction - 2021
- Engineering Dynamics Company - HVE Forum - 2021

## Affiliations

- New Jersey Association of Accident Reconstructionists (NJAAR)
- ASTM F13 Committee on Pedestrian/Walkway Safety and Footwear
- Society of Automotive Engineers (SAE)