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Tara P. Khatua, Ph.D., P.E.

Chief Executive Officer

Professional Profile

Dr. Tara Khatua is the Chief Executive Officer of InSciTech. Dr. Khatua joined the Company in April, 2011, after leaving Exponent Inc., where he worked for twenty seven years.

Dr. Tara Khatua specializes in occupant kinematics; dynamics of automobiles, trucks, forklifts and motorcycles; computer simulation of accidents; accident reconstruction and injury assessment. He has research and development expertise in the areas of heavy truck crashworthiness, crash simulations, restraint system optimization, Hybrid III dummy properties evaluation, human head and spine modeling, multi-layer sandwich, and other complex composite constructions. He has also participated in the development of special-purpose computer programs for stress and dynamic analysis. Dr. Khatua's research further includes analysis of nuclear power plant structure, piping, and pipe support systems; seismic and probabilistic analysis; evaluation of soil-structure and fluid-structure interactions; accident analysis of pressurized water and boiling water reactor plants; and analyses of steam generator tubes and tube supports.

Prior to joining InSciTech, Dr. Khatua held several academic and engineering positions and most recently served over twenty years as Principal Engineer and Practice Director of Biomechanics Practice at Exponent Inc., as Managing Engineer at Nutech Engineers, and as Supervising Engineer at Sargent and Lundy.

Credentials and Professional Affiliations

Ph.D., Solid Mechanics, University of Calgary, Canada, 1972
M.S., Advanced Structural Analysis, University of London, England, with Distinction, 1969
B.S., Civil Engineering, University of Burdwan, India (received Gold Medal for best undergraduate in Civil Engineering), 1968

Licenses and Registrations

Registered Professional Civil Engineer, California, #C34903

Publications

"Heavy Truck Crashworthiness—Case Studies of Heavy Truck Accidents Involving Truck Occupant Fatality," Proceedings, 15th International Technical Conference on the Enhanced Safety of Vehicles, Melbourne, Australia, May 1996 (with L.Y. Cheng, S.M. Werner, R.M. Ray, and E.C. Lau).

"Heavy Truck Crashworthiness—Collision Accidents," Proceedings, 15th International Technical Conference on the Enhanced Safety of Vehicles, Melbourne, Australia, May 1996 (with L.Y. Cheng, S.M. Werner, and D.S. Girvan).

"Heavy Truck Crashworthiness—90^{o} Rollover Accidents," Proceedings, 15th International Technical Conference on the Enhanced Safety of Vehicles, Melbourne, Australia, May 1996 (with L.Y. Cheng, D.S. Girvan, and S.M. Werner).

"U.S. Efforts to Improve Heavy Truck Occupant Crash Protection and Reduce Aggressivity in Frontal Truck/Car Collisions," Proceedings, Fourteenth International Technical Conference on Enhanced Safety of Vehicles, Munich, Germany, May 1994 (with R.M. Clarke et al.).

"Simulation of BioSID Head-Neck Motions," *Safety Technology*, Society of Automotive Engineers SP-1041, February 1994 (with D.S. Grewal and J.G. Paver).

"The Application of Biomechanics to the Analysis of Automotive and Skiing Accident Injuries," Proceedings, 4th Conference on Structural Failure, Product Liability and Technical Insurance, Vienna, Austria, July 1992 (with R.L. Piziali and R. Merala).

"The Prediction of Hybrid III Manikin Head-Neck Kinematics and Dynamics," Vehicle Crashworthiness and Occupant Protection in Frontal Collisions, pp. 85–92, Society of Automotive Engineers, February 1990 (with J.G. Paver et al.).

"Vision and Visibility in Vehicular Accident Reconstruction," *Journal of Passenger Cars*, Section 6, Vol. 99, pp. 547–561, Society of Automotive Engineers, 1990 (with E.S. Phillips, R.L. Piziali, and G. Kost).

"Finite Element Analysis of Diffuse Axonal Injury," Vehicle Crashworthiness and Occupant Protection in Frontal Collisions, pp. 141–154, Society of Automotive Engineers, February 1990 (with L. Cheng, S. Rifai, and R.L. Piziali).

"ATB Simulation of Hybrid III Dummy in Sled Tests," Society of Automotive Engineers International Congress and Exposition, Detroit, MI, Paper #880646, February 1988, (with L.Y. Cheng and R.L. Piziali).

Publications *(continued)*

"On the Superparametric Shell Elements," *International Journal of Numerical Methods in Engineering*, Vol. 12, No. 12, 1978 (with A.K. Gupta).

"Analysis of Multilayer Sandwich Shells Using Curve Elements," *Journal of the Engineering Mechanics Division*, Vol. 103, No. EM1, American Society of Civil Engineers, February 1977 (with C. Kasement and Y.K. Cheung).

"A Finite Element Solution Program for Large Structures," *International Journal for Numerical Methods in Engineering*, Vol. 10, No. 2, 1976 (with Y.K. Cheung).

"Stability Analysis of Multilayer Sandwich Structures," *American Institute of Aeronautics and Astronautics Journal*, Vol. 11, No. 9, September 1973 (with Y.K. Cheung).

"Bending and Vibration of Multilayer Sandwich Beams and Plates," *International Journal for Numerical Methods in Engineering*, Vol. 6, No. 1, 1973 (with Y.K. Cheung).

"A Triangular Element for Bending and Vibration of Multilayer Sandwich Plates," *Journal of the Engineering Mechanics Division*, Vol. 93, No. EM1, American Society of Civil Engineers, June 1972 (with Y.K. Cheung).

Presentations

"The Use of ATB/DYNAMAN in Injury Biomechanics," The 1995 ATB Model Users' Colloquium, Armstrong Laboratory, Wright Patterson Air Force Base, OH, June 1995 (with L.Y. Cheng, R. Fijan and R. Schmidt-Hargrave).

"Application of the MADYMO Program in Heavy Truck Crashworthiness," 5th International MADYMO Users' Meeting, Fort Lauderdale, Florida, November 1994 (with L.Y. Cheng and D.S. Girvan).

"Use of Computer Simulations in Support of Litigation," 5th International MADYMO Users' Meeting, Fort Lauderdale, FL, November 1994 (with R.L. Piziali et al.).

"SAE Truck Crashworthiness Research - A Progress Report," Presentation, International Truck & Bus Meeting and Exposition, Detroit, MI, 1993 (with L.Y. Cheng et al.).

"Emergency Management Technology: Technology for Predicting the Past Emergency Reconstruction," 1989 Society of Computer Science Western Multiconference, San Diego, CA, January 1989 (with R.L. Piziali).

Presentations *(continued)*

"Technical Aspects of Complex Accident Reconstruction," 1989 Practicing Law Symposium, October 1989 (with R.L. McCarthy et al.).

"Use of Modal Damping in Direct Time-History Analysis," 9th International Conference on Structural Mechanics in Reactor Technology, Lausanne, Switzerland, August 1987.

"FANTASTIC, A New Code for Rocket Motor Analysis," Joint Army-Navy-NASA-Air Force Interagency Propulsion Committee, Structures and Mechanical Behavior Subcommittee Meeting, Huntsville, AL, March 1987 (with P.R. Johnston et al.).

"Structural Reanalysis Using Eigenvalue Modification Technique," 8th International Conference on Structural Mechanics in Reactor Technology, Brussels, Belgium, August 1985.

"A Rational Approach for Dynamic Coupling Analysis of Piping Systems," 5th International Council for Pressure Vessel Technology Conference, San Francisco, CA, September 1984 (with W.V. Weber).

"A Cost-Effective Qualification Procedure for Small Bore Piping Using Flexible Loops," 4th National Congress on Pressure Vessel and Piping Technology, Portland, OR, June 1983 (with Y.C. Chen and A. Kumano).

"Safety Relief Valve Alternate Analysis Method," International Specialist Meeting on BWR Pressure Suppression Containment Technology, Gesellschaft fur Kernenergieverwertung in Schiffbau und Schiffahrt Research Center, Geesthacht, West Germany, June 1981 (with R.H. Adams and A. Javid).

"An Evaluation of Soil Structure Interaction Methods," American Society of Civil Engineers - Engineering Mechanics Division, Specialty Conference on Dynamic Response of Structures, Atlanta, GA, January 1981 (with A.K. Singh, T.I. Hsu, and S.L. Chu).

"Effect of Plate Flexibility on Design of Expansion Anchor Base Plates," American Society Civil Engineers Specialty Conference, Civil Engineering and Nuclear Power, Knoxville, TN, September 1980 (with S.K. Goel and T. Longlais).

"Response Using Dynamic Influence Coefficients," 7th Conference on Electronic Computation, American Society of Civil Engineers, St. Louis, MO, August 1979 (with A.K. Singh, N.A. Holmes and S.L. Chu).

Presentations *(continued)*

"Nonlinear Finite Element Analysis of RC Structures Subjected to Thermal Load," 5th International Conference on Structural Mechanics in Reactor Technology, Berlin, West Germany, August 1979 (with A. Al-Dabbagh).

"Dynamic Analysis of Buried Structures Subjected to Shock Loads," 5th International Conference on Structural Mechanics in Reactor Technology, Berlin, West Germany, August 1979 (with A.K. Pattanayak and A.K. Gupta).

"Application of the Finite Element Method to the Nonlinear Analysis of RC Structures," American Society for Civil Engineers Fall National Convention, Chicago, IL, October 1978 (with H.R. Radwan and Y. Sarne).

"Stochastic Seismic Stability Prediction of Earth Dams," American Society of Civil Engineers Geotechnical Engineering Conference, Pasadena, CA, June 1978 (with M.P. Singh).

"Finite Element Analysis of Axisymmetric Multilayer Sandwich Plates and Shells," International Conference on Finite Element Methods in Engineering, The University of New South Wales, Sydney, Australia, August 1974 (with Y.K. Cheung).

Reports

"Millstone II Degraded Support Analysis: Analysis of Tube Vibrations and Tube-Support Interaction Forces," Failure Analysis Associates Report, December 1986 (with C.S. Schoof et al.).

"Attenuation Study of the Responses Due to Pool Dynamic Loads," Structural Analysis Division Report 370, Sargent & Lundy, October 1980 (with J. Pop and P.S. Ma).

"Structural Building Response Review," Report to Seismic Safety Margin Research Program SL-3759, Lawrence Livermore Laboratory, Livermore, CA, February 1980 (with A.K. Singh and T.I. Hsu).

"Effect of Large Aspect Ratio in Seismic Soil Structure Interaction Analysis," Structural Analysis Division Report 241, Sargent & Lundy, September 1975 (with P.K. Agrawal and D.P. Beck).

"Hardening Analysis of the NP-1 Power Station - Phase I," Sargent & Lundy Report SL-3198, May 1975 (with H. Singh).