

ASHOK D. BELEGUNDU

Professor of Mechanical Engineering

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SUMMARY

Energetic professor of mechanical engineering has good skills in applying math and statistics to model-based and simulation-based design. Can readily transport these problem solving skills related to formulation, coding and results validation, to new technologies. Good collaboration, communication, mentoring, teaching and writing skills.

EDUCATION

Ph.D. Civil & Mechanical Engineering, The University of Iowa, 1982

B.Tech. Civil Engineering, Indian Institute of Technology, Madras, 1977

ACADEMIC EXPERIENCE

1986 - Present : Professor of Mechanical Engineering Pennsylvania State University, University Park

1982- '85: GMI Engineering & Management Institute, Flint, Michigan (now called Kettering University)

Summer Fellowships NASA Lewis (1993), NASA Goddard (2003), General Motors Technical Center (1986)

Sabbatical leave Cranfield University, UK (2001-02)

TEACHING EXPERIENCE

- Undergraduate level: Vibration of mechanical systems, Capstone design, Engineering optimization, Finite element analysis, Kinematics and dynamics
- Graduate level: Optimization of mechanical and structural systems, Solid mechanics, Nonlinear finite elements
- Distance courses: Solid mechanics, Optimization, Finite elements
- Continuing education (short) courses to industry on several occasions

RESEARCH EXPERIENCE

- Worked on research projects as Principal Investigator, some funded multiple times by National Science Foundation, Army Research Office, Office of Naval Research, Ingersoll-Rand, Gentex Corp, SERC-UK
- Consulting with industry (Macneal-Schwendler Corp., Several small companies in Pennsylvania)
- Theses advisor to 7 Ph.D. and over 25 M.S. students ; served on over 50 Ph.D. committees
- Associate Editor: *AIAA Journal* (1995-1998), *Mechanics of Structures & Machines* (1998-2007)
- Member of the Operations Research Faculty: <https://www.or.psu.edu/>

SOFTWARE EXPERTISE: Ansys Mechanical, Abaqus, Nastran, Matlab programming, Fortran

BOOKS :

Optimization Concepts and Applications in Engineering, Cambridge Univ. Press, 3rd edition

Introduction To Finite Elements In Engineering, Pearson Education, Inc., 4th edition

Optimization In Industry I & II, 1997, 1999 (Editor), ASME Press

Optimization in Acoustics, Book Chapter, Optimization of Structural and Mechanical Systems, World Scientific

RECENT PUBLICATIONS

“Optimal design of a segmented tube with side branches for noise reduction”, *ASME IMECE* 2018, Nov 11-15, 2018 [[university-industry collaboration](#)]

“Vibration-based Damage Accumulation”, *ASME IDETC/CIE* 2016, August 21-24, Charlotte, NC [[university-industry collaboration](#)]

“A general optimality criteria algorithm for a class of engineering optimization problems”, *Engineering Optimization*, Volume 47, Issue 5, 2015, pp.674-688

“Process for design optimization of honeycomb core sandwich panels for blast load mitigation”, *Structural and Multidisciplinary Optimization*, May 2013, Volume 47, Issue 5, pp 749–763 [ARO sponsored, co-authored with ARO scientist].

“Conjoint-analysis-based multiattribute optimization: application in acoustical design”, *Structural and Multidisciplinary Optimization*, January 2006, Volume 31, Issue 1, pp 8–16. [[National Science Foundation sponsored, with industrial application](#)]