William Stamps Howard, Ph.D.

President
Stability Technology, Inc.
Atlanta, Georgia
(770) 331-2283
(678) 261-1500 Fax
WSHoward@StabilityTech.com
www.StabilityTech.com

EDUCATION, LICENSES, & PATENTS

- PhD, Department of Mechanical Engineering, *University of Pennsylvania*
- MS, Department of Mechanical Engineering, *University of Pennsylvania*
- MBA, School of Business Administration, *Monmouth University*
- BSEE**,** *Cum Laude*, Department of Electrical Engineering, *Rensselaer Polytechnic Institute*
- BSME, *Cum Laude*, Department of Mechanical Engineering, *Rensselaer Polytechnic Institute*
- P.E., Professional Engineer, States of Georgia, New Jersey and Alabama
- 3 United States and Foreign Patents

WORK HISTORY

President, *Stability Technology, Inc*. Buford, GA

A consulting company specializing in Manufacturing, including the design and development of new industrial machinery. Stability Technology is a company that provides specialized design and engineering services to Manufacturing companies in the area of manufacturing, machinery, industrial equipment, packaging equipment, and industrial automation. In particular, this includes Mechanical and Electrical design of machinery, Manufacturing economic analysis, Manufacturing consulting, Manufacturing productivity and efficiency analysis and improvement, legal services (Tort and Intellectual Property) related to the design of machinery, development of machinery and equipment based on patents and/or trade secrets, safety engineering, machine guarding, and control system design. Knowledge of machinery development and design practices (both forward and reverse engineering), which is applied to the production of industrial machinery and equipment produced by Machinery Manufacturers.

R&D Director *Kliklok Corporation*, Decatur, GA

Responsible for the design, development, and creation of all new Kliklok-branded and Woodman-branded machinery and equipment (in addition to the Woodman line, described below, Kliklok is one of the largest US manufactures of carton closers, carton erecting machines, end-loaders, top load closers, over-wrappers, and associated cartoning equipment). Responsible for the field testing of all new equipment, and often visited the factories to ensure

the new machinery operated properly.

Engineering Manager, *Woodman Division of Kliklok Corp*., Decatur, GA
Responsible for the design, development, and creation of new Woodman-branded packaging machinery (Woodman is one of the largest US manufacturers of vertical bagmaking machinery, as well as weighers, volumetric scales, conveyors, casers, infeed equipment, and associated mezzanines and support structures). Oversaw the production and manufacture of all Woodman machinery and equipment. Responsible for the successful operation of the machinery in plants and factories, and often visited the factories to ensure proper operation.

Lead Research Engineer, *GRASP Robotics Laboratory,* Philadelphia, PA
Responsible for the research, operation, and testing of various robotic systems in an applied research facility.

Member of the Tech. Staff, Mechanisms Group*, General Electric*, Princeton, NJ
Developed the robotic end-effectors, tooling, and other mechanisms for use in orbital operations.

Current and Former Affiliations

- ASSE, The American Society of Safety Engineers, Professional Member
- IOPP, The Institute of Packaging Professionals, Member
- IEEE. The Institute of Electrical and Electronics Engineers, Member
- ASME, The American Society of Mechanical Engineers, Member

List of Publications

- W. S. Howard, *Stability of Grasped Objects*, UMI, Ann Arbor, MI, 175 pp, 1995
- J. Donahue, W. S. Howard, and V. Kumar, *Stable Workpiece Fixturing*, ASME Conference - Advances in Design Automation, 1994.
- W. S. Howard and V. Kumar, *On the Stability of Grasped Objects*, IEEE Transactions on robotics and Automation, 1995.
- W. S. Howard, and V. Kumar*, Modeling and Analysis of the Compliance and Stability of Enveloping Grasps*, IEEE Conference on Robotics and Automation, 1367-1372, 1995.
- W. Stamps Howard, Vijay Kumar: *A Minimum Principle for the Dynamic Analysis of Systems with Frictional Contacts*. ICRA (3) 1993: 437-442
- W. Stamps Howard, Vijay Kumar: *Stability of Planar Grasps*. ICRA 1994: 2822-2827
- Stamps Howard, Milos Zefran, Vijay Kumar *On The 6x6 Cartesian Stiffness Matrix For Three-Dimensional Motion* Mech. Mach. Theory Vol.33, No.4, pp. 389-408, 1998
- William Stamps Howard, *Trends in Electrical Safety of Machines*, IDS Packaging Conference, 17 January - 4 February, 2005.

Partial List of Machinery Designed, Interfaced and/or Analyzed

Conveyors	Vibration Feeders	End Loaders
Top Loaders	Carton Feeders	Carton Former
Continuous Bagmakers	Draw-bar bagmakers	Intermittent machines
Weighers	Formers (bags)	Augers
Mezzanines	Platforms	Railings
Pack-Off Conveyors	Volumetric Feeders	Labelers
Vision Systems	Code Daters	Auto-caser
Film Handling Systems	Automatic Splicers	Printing Press
Stacking & Sorting Machines	Corrugated Machinery	Newspaper Machinery
Textile Machinery	Packaging Machinery	Pharmaceutical Machinery
Robotic Machinery	Recycling Machinery	Cleaning Machinery
Laser-Cutting Machinery		