Stanford



J David Powell

Professor of Aeronautics and Astronautics and of Mechanical Engineering, Emeritus

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

EDUCATION:

1960 - B.S. Mechanical Engineering, M.I.T.

1966 - M.S. Aeronautics & Astronautics, Stanford

1970 - Ph.D. Aeronautics & Astronautics, Stanford

EXPERIENCE:

1960-1961 - Engine Design and Testing Engineer at Outboard Marine Corp.

1961-1967 – Engineer at Lockheed in the field of Aerospace Guidance and Control

1967-1968 – Engineer at Analytical Mechanics Associates

1968-1970 – Engineer, Systems Control, Inc. Parameter ID of aircraft models from flight data, automatic generation of approach paths for Air Traffic Control. Attended Stanford University specializing in control systems.

1971 – 1998 – Member of the Stanford Faculty in the Aeronautics and Astronautics Department. His research has included spacecraft pointing, space tether dynamics and control, internal combustion engine control, the design of aerospace digital flight control systems, GPS-based attitude determination augmented with inertial sensors, and the use of GPS for air and land vehicle surveillance and navigation. He taught courses in aerospace control including radio and inertial navigation, optimization and digital implementations and is a coauthor of two of the leading control textbooks. He is also an author or coauthor on over 100 papers.

1998 – present – Emeritus faculty carrying out research in Aeronautics and Astronautics at Stanford Univ. Recent focus of research is the use of GPS-based attitude determination augmented with inertial sensors, applications of the FAA's WAAS for enhanced pilot displays, flight inspection of aircraft landing systems, and the use of WAAS and new displays to enable closer spacing of parallel runways.

SOCIETY MEMBERSHIPS

AIAA (Fellow), ASME (Fellow), SAE, IEEE, ION

CONSULTANT TO: (over past several years)

Seagull Technology

Sequoia Instruments

Engine Control and Monitoring

Transparent Networks

Pratt and Whitney (Technical Advisory Committee)

Sensor Platforms

OTHER RECENT ACTIVITIES

Co-Founder, CEO, and Director of GyroSat Corp. 1999 – 2000

Director of Sequoia Instruments, 2001 – 2005

Aircraft owner and licensed instrument pilot

National Research Council Panel member for the review of NASA airspace activities, 2003

Board of Directors, Mechanics Bank, Richmond, CA., 2003 – 2015

Board of Directors, ExactBid, Inc. 2014-present.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Aeronautics and Astronautics

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Committee member, International Committee on Airspace Standards and Calibration (ICASC) (1995 - present)

Publications

PUBLICATIONS

- **Feedback Control of Dynamic Systems**
  Franklin, G. F., Powell, J. D., Emami-Naeini, A.
  Pearson.2018
- **Design and Flight Test of a Cable Angle Feedback Flight Control System for the RASCAL JUH-60 Helicopter** *JOURNAL OF THE AMERICAN HELICOPTER SOCIETY*
  Ivler, C. M., Powell, J. D., Tischler, M. B., Fletcher, J. W., Ott, C.
  2014; 59 (4)
- **Unaugmented GPS-Based Flight Inspection System** *IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS*
  Kim, E., Walter, T., Powell, J. D.
  2010; 46 (2): 717-724
- **Wide area augmentation system-based might inspection system** *JOURNAL OF AIRCRAFT*
  Kim, E., Walter, T., Powell, J. D.
  2008; 45 (2): 614-621
- **Fault Detection and Elimination for Galileo-GPS Vertical Guidance** *2007 National Technical Meeting of the Institute-of-Navigation*
  Ene, A., Blanch, J., Powell, J. D.
  INST NAVIGATION.2007: 1244–1254
- **A Reference Point-based Precise Relative Positioning Method Using a Single Frequency Receiver** *2006 National Technical Meeting of the Institute-of-Navigation*
  Kim, E., Walter, T., Powell, J. D.

INST NAVIGATION.2006: 283–292

- **Probability of midair collision during ultra closely spaced parallel approaches** *JOURNAL OF GUIDANCE CONTROL AND DYNAMICS*
  Houck, S. W., Powell, J. D.
  2003; 26 (5): 702-710
- **Observer-based air-fuel ratio control** *IEEE CONTROL SYSTEMS MAGAZINE*
  Powell, J. D., Fekete, N. P., Chang, C. F.
  1998; 18 (5): 72-83
- **Digital Control of Dynamic Systems**
  Franklin, G. F., Powell, J. D., Workman, M. L.
  Elli-Kagle Press.1998
- **On-line adaptive optimal combustor control** *IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY*
  PADMANABHAN, K. T., Bowman, C. T., Powell, J. D.
  1996; 4 (3): 217-229
- **Integration of wide area DGPS with local area kinematic DGPS** *IEEE 1996 Position Location and Navigation Symposium (PLANS 96)*
  LAWRENCE, D., Evans, J., Chao, Y. C., Tsai, Y. J., Cohen, C., Walter, T., Enge, P., Powell, J. D., Parkinson, B.
  I E E E.1996: 523–529
- **Use of passive damping for a tethered artificial gravity spacecraft** *AAS/AIAA Astrodynamics Conference*
  Saeed, S. I., Powell, J. D.
  UNIVELT INC.1996: 887–903
- **The effect of GPS-based surveillance on aircraft separation standards** *IEEE 1996 Position Location and Navigation Symposium (PLANS 96)*
  Gazit, R. Y., Powell, J. D.
  I E E E.1996: 360–367
- **Continuity improvements via inertial augmentation of GPS-based landing system** *IEEE 1996 Position Location and Navigation Symposium (PLANS 96)*
  Ko, P. Y., Enge, P., Powell, J. D.
  I E E E.1996: 153–160
- **AIR-FUEL RATIO CONTROL IN SPARK-IGNITION ENGINES USING ESTIMATION THEORY** *IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY*
  Chang, C. F., Fekete, N. P., Amstutz, A., Powell, J. D.
  1995; 3 (1): 22-31
- **IDENTIFICATION AND AIR-FUEL RATIO CONTROL OF A SPARK-IGNITION ENGINE** *IEEE TRANSACTIONS ON CONTROL SYSTEMS TECHNOLOGY*
  Jones, V. K., AULT, B. A., Franklin, G. F., Powell, J. D.
  1995; 3 (1): 14-21
- **Flight tests of a 3-D perspective-view glass-cockpit display for general aviation using GPS** *8th International Technical Meeting of the Satellite Division of the Institute-of-Navigation (ION GPS-95)*
  Barrows, A., Enge, P., Parkinson, B., Powell, J. D.
  INST NAVIGATION.1995: 1615–1622
- **A bit of information on identification with a zirconia sensor** *1995 American Control Conference*
  Jones, V. K., Franklin, G. F., Powell, J. D.
  AMER AUTOMATIC CONTROL COUNCIL.1995: 1657–1661
- **Observed GPS signal continuity interruptions** *8th International Technical Meeting of the Satellite Division of the Institute-of-Navigation (ION GPS-95)*
  COBB, H. S., LAWRENCE, D., Christie, J., Walter, T., Chao, Y. C., Powell, J. D., Parkinson, B.
  INST NAVIGATION.1995: 793–795
- **Maintaining GPS positioning in steep turns using two antennas** *8th International Technical Meeting of the Satellite Division of the Institute-of-Navigation (ION GPS-95)*

LAWRENCE, D., COBB, H. S., Cohen, C., Christie, J., Powell, J. D., Parkinson, B.
INST NAVIGATION.1995: 1451–1459

- **Autolanding a 737 using GPS and integrity beacons** *AIAA/IEEE 14th Digital Avionics Systems Conference (14th DASC)*
  Cohen, C. E., COBB, H. S., Lawrence, D. G., Pervan, B. S., Powell, J. D., Parkinson, B. W., Aubrey, G. J., Loewe, W., Ormiston, D., MCNALLY, B. D., Kaufmann, D. N., Wullschleger, V., Swider, et al
  I E E E.1995: 474–482
- **Precision landing tests with improved integrity beacon pseudolites** *8th International Technical Meeting of the Satellite Division of the Institute-of-Navigation (ION GPS-95)*
  COBB, H. S., LAWRENCE, D., Pervan, B., Cohen, C., Powell, J. D., Parkinson, B.
  INST NAVIGATION.1995: 827–833
- **FLIGHT TRIALS OF THE WIDE AREA AUGMENTATION SYSTEM (WAAS)** *7th International Technical Meeting of the Satellite-Division of the Institute-of-Navigation (ION GPS-94)*
  Walter, T., Kee, C., Chao, Y. C., Tsai, Y. J., PELED, U., Ceva, J., Barrows, A., Abbot, E., Powell, J. D., Enge, P., Parkinson, B.
  INST NAVIGATION.1994: 1537–1546
- **TETHERED ARTIFICIAL GRAVITY SPACECRAFT DESIGN** *AAS/AIAA Astrodynamics Conference*
  KOWALSKY, C., Powell, J. D.
  UNIVELT INC.1994: 645–664
- **THRUSTERLESS VIBRATION CONTROL FOR TETHERED ARTIFICIAL GRAVITY SPACECRAFT** *AAS/AIAA Astrodynamics Conference*
  THORNBURG, S. L., Powell, J. D.
  UNIVELT INC.1994: 839–857
- **COMMUNICATION PROTOCOLS FOR GPS-BASED SURVEILLANCE AND TCAS** *7th International Technical Meeting of the Satellite-Division of the Institute-of-Navigation (ION GPS-94)*
  Gazit, R., Powell, J. D.
  INST NAVIGATION.1994: 923–932
- **FLIGHT TEST RESULTS OF AUTOCOUPLED APPROACHES USING GPS AND INTEGRITY BEACONS** *7th International Technical Meeting of the Satellite-Division of the Institute-of-Navigation (ION GPS-94)*
  Cohen, C., LAWRENCE, D., Pervan, B., COBB, H. S., Barrows, A., Powell, J. D., Parkinson, B., Wullschleger, V., Kalinowski, S.
  INST NAVIGATION.1994: 1145–1153
- **AUTONOMOUS INTEGRITY MONITORING FOR GPS-BASED PRECISION LANDING USING GROUND-BASED INTEGRITY BEACON PSEUDOLITES** *7th International Technical Meeting of the Satellite-Division of the Institute-of-Navigation (ION GPS-94)*
  Pervan, B., Cohen, C., LAWRENCE, D., COBB, H. S., Powell, J. D., Parkinson, B.
  INST NAVIGATION.1994: 609–618
- **ENGINE CONTROL USING CYLINDER PRESSURE - PAST, PRESENT, AND FUTURE** *JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME*
  Powell, J. D.
  1993; 115 (2B): 343-350
- **TETHER DAMPING IN SPACE** *JOURNAL OF GUIDANCE CONTROL AND DYNAMICS*
  He, X. H., Powell, J. D.
  1990; 13 (1): 104-112
- **MULTIRATE DIGITAL-CONTROL SYSTEM-DESIGN** *IEEE TRANSACTIONS ON AUTOMATIC CONTROL*
  Berg, M. C., Amit, N., Powell, J. D.
  1988; 33 (12): 1139-1150
- **FUEL-AIR RATIO DETERMINATION FROM CYLINDER PRESSURE TIME HISTORIES** *JOURNAL OF DYNAMIC SYSTEMS MEASUREMENT AND CONTROL-TRANSACTIONS OF THE ASME*
  Gilkey, J. C., Powell, J. D.
  1985; 107 (4): 252-257
- **COMPUTER-AIDED PROCEDURES FOR OPTIMIZATION OF ENGINE CONTROLS** *INTERNATIONAL JOURNAL OF VEHICLE DESIGN*
  TENNANT, J. A., Cohen, A. I., Rao, H. S., Powell, J. D.

1983; 4 (3): 258-269

- **IMAGE MOTION COMPENSATION SYSTEM FOR THE SHUTTLE INFRARED TELESCOPE FACILITY** *AUTOMATICA*
  LORELL, K. R., PARSONS, E. K., Powell, J. D.
  1981; 17 (4): 555-562
- **SAMPLE RATE SELECTION FOR AIRCRAFT DIGITAL CONTROL** *AIAA JOURNAL*
  Powell, J. D., Katz, P.
  1975; 13 (8): 975-979
- **DESIGN METHOD FOR MINIMIZING SENSITIVITY TO PLANT PARAMETER VARIATIONS** *AIAA JOURNAL*
  HADASS, Z., Powell, J. D.
  1975; 13 (10): 1295-1303