Curriculum Vitae

Thomas A. Rebold
980 Fremont St, BMC203
Monterey, CA 93940
831-645-1327
trebold at alum dot mit dot edu

Web site: http://tomrebold.com

Highlights

- Extensive educational curriculum and program development experience
- Creative project innovation for education
- Communication systems engineering experience in design, simulation and analysis
- Digital signal processing experience in algorithm development, simulation, and analysis
- Robotic and autonomous system development using BASIC Stamp and other controllers
- Software development and modeling in Java, C++, C, Matlab, Perl/CGI, and PBASIC
- Project management, system engineering, integration and testing

Education

1986-87   **Master of Science in Electrical Engineering and Computer Science**
Massachusetts Institute of Technology, Cambridge, MA
Thesis: Dynamic error correction method for high speed analog-to-digital converters
Supervised by Fred Irons and James K. Roberge.

1982-86   **Bachelor of Science in Electrical Engineering**
Massachusetts Institute of Technology, Cambridge, MA

Teaching and Related Experience

2004-present   **Chair, Department of Engineering**, Monterey Peninsula College, Monterey, CA
Co-Chair, Department of Computer Science and Information Systems
I received tenure and promotion to chair in May of 2004. As chair I am responsible for budgeting, curriculum, writing grant proposals, hiring and evaluating adjunct faculty, and coordinating with statewide discipline groups to maintain articulation of our program offerings to UC and CSU equivalent courses. I have been teaching online engineering classes since 2012, and have been developing online curricula for a Circuits Laboratory class under a grant from NSF-IUSE. I am also currently designing a multi-disciplinary Robotics Tech Associates program in conjunction with the Carmel High Robotics Center that will provide a shared community resource for college students in engineering, arts, and technology.

2000-present   **Instructor, Department of Engineering, Monterey Peninsula College**

Instructor, Department of Computer Science and Information Systems

Developed a novel coding drill applet that uses advanced textual analysis to provide feedback to students attempting to master basic coding syntax, guiding them toward proper expression of foundational units to better prepare them for more advanced programming.

Since 2000, I have taught and developed curriculum for more than 15 different classes. My current classes, offered across a two semester school year, include:
>Programming Methods I: Java
>Programming Methods II: Java (Intro to Data Structures)
>Bridge to C/C++ Programming
>Introduction to Engineering
>Engineering Statics
>Engineering Circuits with Laboratory
>Technical Computing with MATLAB
>Seminar in Robotics

Other classes I have taught and/or developed include Introduction to Computer Science and Information Systems, Introduction to Linux and Unix, Linux and Unix administration, Engineering Graphics, Seminar in Linux for the Home and Office, Seminar in Game Programming, and the Computer Science Programming series listed above in C++. I have served as advisor for the MPC Robotics club, the MPC Computer Science club, and taught electronics workshops for the Marine Advanced Technology Summer ROV Institute at MPC.

In collaboration with the Marine Advanced Technology Education center at MPC, I initiated and advised MPC's first student robotics club, which went on to win the only underwater "battlebot" competition hosted by Discovery Channel (September 1, 2002), and also assisted subsequent teams thereafter by providing training in electronics, power systems, control and sensors.

While serving on the Curriculum Advisory Committee, I conceived and managed the creation of an institutional web tool, Automatic Course Outline Revision (ACORN), that streamlined the process for faculty by populating Word RTF forms with current database information as a 3 year stop-gap until the Curricunet system came online.

Committees I have served on include the
Vice President of Academic Affairs search committee		2011
Accreditation Self Study Standard III (Technology) committee co-chair		2009-10
Carmel High School Robotics Center advisory committee		2008
Computer Networking Instructor search committee chair		2008
Auto-Tech Instructor search committee		2006
Curriculum Advisory Committee	since	2004

Public Lecture

2008   *Technology 451: How to Build Your Own Mechanical Hound*, part of a faculty panel exploring how today's technologies affect our lives. Organized for The Big Read: *Fahrenheit 451* by the National Steinbeck Center.

Artworks Exhibited

2011   [GhostWriter](), ArtArk Gallery, San Jose, CA. In *Sonic: An Exhibition Featuring Sound*, curated by Nancy Sevier. A "marimba typewriter" fusing the modern computer keyboard with a direct descendant of the earliest of musical instruments.

2010   [Longing For North](), ArtArk Gallery, San Jose, CA. In *Modified*, curated by Nancy Sevier. A tenuous DC motor made from steel and copper wire.

2009   [Chairisma 2.0](), Works Gallery, San Jose, CA. In *Remote Control*, curated by Jason Challas and Sheila Malone, part of *SubZERO 2009*. An autonomous walking chair.

Technical Experience

1996 - 2000   **Satellite Communications Engineer, [Jet Propulsion Laboratory]()**

Developed national security/emergency preparedness priority access features for Iridium/Globalstar/ICO mobile satellite services, formulating development plan and mediating between industry and government representatives. Simulated communication protocols for digital receivers and conducted on-site experiments in Rome for the [ABATE]() airborne satellite communications link and the [Sea Dragon]() joint battlefield communications system.

Designed and fabricated autonomous, wind and solar powered [GPS stations]() for deployment to Antarctica: power electronics, state of health, weather monitors, and system integration. Performed field installation and maintenance in Marie Byrd Land.

1993 - 2000   **[Radio Science]() Data Analyst, [Jet Propulsion Laboratory](), Pasadena, CA**

Modeled Lunar Prospector radio diffraction effects and applied to radio occultation measurements of the lunar limb, culminating in a 3D map.

Recovered [Mars Pathfinder]() radio Doppler profile across a two minute gap at Mars entry. Analyzed link statistics during rover-to-lander communication difficulties and advised mission controllers.

Developed [Galileo]() radio science software analysis package to enhance phase detection, verify frequency stability requirements, and perform flight link simulations using C and

Matlab. Used package to isolate and diagnose data anomalies in flight systems and ground recording systems.

1997-98   **Field Radio Technician, McMurdo Station, Antarctic Support Associates, Antarctica**

Installed and maintained HF/VHF/UHF and microwave terrestrial and satellite radio systems in McMurdo environs, Dry Valley mountaintops, and deep field science camps.

1987-1993   **Deep Space Network System Engineer, Jet Propulsion Laboratory**

Lead system engineer/coordinator for Ka-Band link experiment with Mars Observer and Surfsat-1: prepared link budgets, 34-m antenna pointing strategies, Doppler tuning algorithms, system integration and testing, telemetry and ranging demonstrations, station operations, and link analysis.

1983-1987   **Research Assistant, M.I.T. Lincoln Laboratory, Lexington, MA**

Invented an original approach to removing dynamic errors on high speed analog-to-digital converters, yielding 20 dB reductions in distortion levels.

Technical Publications

G.E. Wood, S.W. Asmar, T.A. Rebold, R.A. Lee, Mars Pathfinder entry, descent, and landing communications, Telecommunications and Data Acquisition Progress Report 42-131, vol. Jul-Sep 1997, Jet Propulsion Laboratory, Pasadena, CA, Nov 15, 1997.

T.A. Rebold, M. Tinto, S.W. Asmar, E.R. Kursinski, Neptune revisited: synthesizing coherent Doppler from Voyager's noncoherent downlink, Telecommunications and Data Acquisition Progress Report 42-131, vol. Jul-Sep 1997, Jet Propulsion Laboratory, Pasadena, CA, Nov 15, 1997.

M.K. Bird, R. Dutta-Roy, S.W. Asmar, T.A. Rebold, Detection of Titan's ionosphere from Voyager 1 radio occultation observations, ICARUS 130: (2) 426-436 Dec 1997.

T.A. Rebold, A. Kwok, G.E. Wood, S.A. Butman, The Mars Observer Ka-Band Link Experiment, Telecommunications and Data Acquisition Progress Report 42-117, vol. Jan-Mar 1994, Jet Propulsion Laboratory, Pasadena, CA, pp250-282, May 15, 1994.

T.A. Rebold, J.F. Weese, Parkes Radio science system design and testing for Voyager Neptune encounter, Telecommunications and Data Acquisition Progress Report 42-99, vol. Jul-Sep 1989, Jet Propulsion Laboratory, Pasadena, CA, pp189-205, Nov 15, 1989.

N.C. Ham, T.A. Rebold, J.F. Weese, DSN Radio science system design and testing for Voyager Neptune encounter, Telecommunications and Data Acquisition Progress Report 42-97, vol. Jan-Mar 1989, Jet Propulsion Laboratory, Pasadena, CA, pp252-284, May 15, 1989.

T.A. Rebold, T.K. Peng, S.D. Slobin, X-band noise temperature near the Sun at a 34-m high efficiency antenna, Telecommunications and Data Acquisition Progress Report 42-93, vol. January-March 1988, Jet Propulsion Laboratory, Pasadena, CA, May 15, 1988.

T.A. Rebold and F.H. Irons, A phase plane approach to the compensation of high speed analog to digital converters, in Proc IEEE Int. Symp. Circuits and Systems, p.455, May 1987.

F.H. Irons, and T.A. Rebold, Characterization of high frequency analog to digital converters for spectral analysis applications, MIT Lincoln Laboratory, Lexington, MA, Project Report AST-2, Nov. 1986.

Non-technical Publications

T. Rebold, Sun Dogs and Ice Snakes: Down Home at Siple Dome, Antarctic Sun, McMurdo Station, p15, January 10, 1998.

T. Rebold, Wiring Antarctica's Dry Valleys, Antarctic Sun, McMurdo Station, Antarctica, p3, November 15, 1997.

T. Rebold, Imagining Whale Songs, Interspecies Newsletter, Friday Harbor, WA, Spring 1991.