

# Byron Smith, P.E.

PO Box 99  
Flagstaff, AZ 86002  
(928) 225-0788  
bsmith@xdoubledot.com

## Experience

### X Double Dot: President, 2011-Present

Provide technical consulting services specializing in large precision dynamic systems. Clients have included both astronomy and defense organizations in the development of optical and RF systems. Duties have included supporting both technical needs, including systems engineering and analysis, and programmatic needs such as program reviews and proposal development. Additional information is available on X Double Dot website at: <http://www.xdoubledot.com>

### Lowell Observatory: DCT Project Manager, 2004-2011

Responsible for the design and construction of the Discovery Channel Telescope, a 4.2m optical telescope, and support facilities. Recruited and led a multi-disciplinary project team from conceptual design to commissioning, including the development of key elements such as control software, mirror supports, and the active optics system in-house. Managed schedule, budget, and technical requirements in consideration of Observatory needs. Established development process and workflow procedures, and provided technical oversight and systems engineering for the development effort.

### Lowell Observatory: Opto-Mechanical Engineer, 2004

Responsible for directing the development of mechanical and opto-mechanical systems for the 4.2m Discovery Channel Telescope. Prepared contract documents and specifications for conceptual design development with major systems contractors. Reviewed and guided design work in progress & coordinated interfaces between other observatory systems.

### VertexRSI: Sr. Mechanical Engineer, 1999-2004

Responsible for analysis and design of components for large precision dynamic structures, such as sat-com antennas, radars, and astronomical telescopes with apertures ranging from 4 to 37 meters. Analysis tasks were wide ranging; including gear and bearing performance, error budgeting, reliability, cost estimates, surface deflections, and development of plant models for controls simulations. Design tasks included development of specifications, procedures, and CAD models, and supervising designers with detail design and drawing creation. Procured major drive components, from generating requirements through to final inspection.

### Schlumberger: Engineer II, 1996-1998

Designed, analyzed, and tested electro-mechanical assemblies for down-hole directional drilling tools. Supervised designers in the creation of production drawings. Worked with machine shops and technicians to improve manufacturability and maintainability of new and existing designs. Applied acoustic and signal processing principles to boost performance of mud telemetry transducers, and optimized hydraulic turbine performance.

#### UT Mechanical Engineering Computer Lab: Teaching Assistant, 1995-1996

Provided technical support to students and maintained hardware and software for 75 seat computer lab. Lab included MacOS and Windows based machines running a wide variety of engineering and office applications. Assisted IT Manager with building network and faculty computer maintenance.

#### UT Society of Automotive Engineers: 1991-1996

As society President (1994-1996), organized society activities, including officer and general meetings, and coordinated needs of project teams. As Formula SAE team member (1991-1996), designed and analyzed racing car components and developed extensive hands-on experience with machine shop and composites manufacturing processes.

#### Willard Smith Construction: 1991

Performed various civil construction related duties over summer working at Superconducting Super Collider, including surveying to support earthmoving operations.

## **Education**

#### University of Texas at Austin: MSME, 1996

Major Area: Mechanical Systems and Design

Supporting Area: Electrical Engineering

Graduate degree was coursework Master's focused on dynamic systems and controls, with two semesters of graduate-level acoustics as electives.

#### University of Texas at Austin: BSME, 1994

Tech Block: Mechanical Systems and Design

Undergraduate work focused on mechanical design and analysis. Completed degree program and two additional graduate level courses in 3.5 years.

## **Publications**

Byron Smith; Brian Cuerden, "Bending Modes for Active Optics," SPIE Proc. 8149-13, 2011.

Byron Smith; Anastacia Manuel, "Delivered Image Quality Budget for the DCT," SPIE Proc. 7738, 2010.

Byron Smith; Tomas Chylek; Bill DeGross; David Finley; Jeffrey Hall; Paul Lotz; Brad McCreight; Alexander Venetiou, "The Discovery Channel Telescope: Early Integration," SPIE Proc. 7733, 2010.

Byron Smith; Tomas Chylek; Brian Cuerden; Bill DeGross; Paul Lotz; Alexander Venetiou, "The Active Optics System for the DCT," SPIE Proc. 7739, 2010.

David T. Finley; Chuck Squires; Brad A. McCreight; Byron W. Smith; Tomas Chylek; Alexander Venetiou, "Design of the Discovery Channel Telescope mount," SPIE Proc. 7012, 2008.

B. W. Smith; T. A. Bida; R. L. Millis; E. W. Dunham; O. M. Wiecha; H. K. Marshall, "Discovery Channel Telescope: progress and status," SPIE Proc. 6267, 2006.

David S. Porter; Thomas A. Sebring; Byron Smith; David Finley; Fred Baine; Kerstan G. Hermann, "The concept design of the Discovery Channel Telescope mount," SPIE Proc. 5489, 2004.

Kerstan G. Hermann; Edward O. Reese; Byron Smith, "Mechanical design considerations unique to giant telescopes," SPIE Proc. 4840, 2003.

## **Professional Awards, Recognition, & Achievements**

Lowell Observatory: Employee of the Year, 2010

Arizona State Board of Technical Registration: Professional Engineer, License #47695

Texas Board of Professional Engineers: Engineer-in-training, #34010, highest FE exam score in TX for Fall 2003

Pi Tau Sigma, TX Kappa chapter: Member of mechanical engineering honor society

U.T. ASME design contest: 1<sup>st</sup> place for all three semesters entered

U.T. College of Engineering: Engineering Honors Program

U.T. College of Engineering: Cockrell Foundation scholarship