

# Christopher Mouton

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## EDUCATION

### California Institute of Technology

Doctor of Philosophy

December 2006

Major: Aeronautical Engineering

Minor: Economics

### California Institute of Technology

Master of Science

June 2002

Major: Aeronautical Engineering

### The University of Texas at Austin

Bachelor of Science

May 2001

Major: Aerospace Engineering Honors

## DOCTORAL THESIS

### Transition between Mach Reflection and Regular Reflection in the Dual-Solution Domain

- Designed and constructed a new Mach 4.0 nozzle and fast moving test model for the existing Ludwig tube facility
- Performed experiments on the transition from regular reflection to Mach reflection due to tunnel disturbances, and energy deposition
- Developed an analytic model for predicting steady-state Mach stem height and Mach stem growth and compared these predictions with numerical and experimental results
- Executed a numerical study of Mach reflection transition using both a two-dimensional code running on desktop computers and a three-dimensional code running on DataStar at the San Diego Supercomputer Center

## EXPERIENCE

December 2006 -  
December 2007

### TNB Distribution

Las Vegas, NV

*Chief Technology Officer*

- Design, implement, and manage state-of-the-art warehousing system
- Complete order management, inventory control, quality control, and shipment system built from the ground up, using PHP, MySQL, and APIs from companies such as UPS, eBay, and Amazon
- Plan and execute a very large paid search campaign with true keyword performance tracking and dynamic bid levels to maximize ROI

Summer 1997 -  
December 2007

### Kama'aina Productions

Carmel, CA

*President / Founder*

- Oversee and provide technical expertise to company projects
- Design, implement and maintain e-commerce sites
- Host and manage UNIX/Linux web servers
- Prepare all financial statements and manage budgetary matters
- Developed software to optimize keyword selection for better search engine placement

Fall 2003 -  
Spring 2006

### Graduate Aeronautical Laboratories, Caltech

Pasadena, CA

*Aeronautics Seminar Chairman*

- Invite speakers from throughout the country to give lectures to the students, faculty and staff
- Coordinate travel, tours, and accommodations for invited speakers

Fall 2000 -  
Spring 2001

### Department of Aerospace Engineering, UT Austin

Austin, TX

*Undergraduate Research Assistant*

- Develop a model for the impact of a water-based comet on the moon with Amtec's INCA running on a Cray supercomputer

- Wrote a paper on how to properly customize INCA to model comet impacts. The paper is scheduled to be produced by the Center for Aeromechanics Research

Summer 2000

**Applied Research Laboratories**

Austin, TX

*Senior Student Researcher*

- Developed computer routines in MatLab to relate ultrasonic reflection and transmission through bonded media to the bond rigidity
- Conducted preliminary experiments to verify bond rigidity predictions

Spring 2000

**Department of Aerospace Engineering, UT Austin**

Austin, TX

*Grader*

- Graded homework assignments and provided feedback to students for Flight Dynamics and Structural Analysis

Fall 1998 -  
Spring 2000

**Department of Aerospace Engineering, UT Austin**

Austin, TX

*Undergraduate Research Assistant*

- Conducted low speed wind tunnel test to examine the effects of riblets on viscous drag
- Examined the ability of riblets to “turn” the flow within the boundary layer
- Presented a paper and delivered a presentation on the topic at the AIAA regional student paper competition

**JOURNAL PUBLICATIONS**

**Mach Stem Height and Growth Rate Predictions, *AIAA Journal***

**Shock Reflection Domain for Steady Flow, *Journal of Fluid Mechanics (submitted)***

**PRESENTATIONS & PROCEEDINGS**

**Experimental Investigation of Tripping between Regular and Mach Reflection in the Dual-Solution Domain, 26<sup>th</sup> International Symposium on Shock Waves**

**Prediction of Mach Stem Height, and Transition by Dust Impingement, 1<sup>st</sup>**

**International Mach Reflection Symposium cum Shock-Vortex Interaction Workshop**

**Development of Three Dimensional Particle Tracking Velocimetry in Supersonic Flow, 42<sup>nd</sup> AIAA Aerospace Sciences Meeting**

**Implementation of 3-D Particle Triangulation Velocimetry, Series of Invited Talks, Korea**

**The Pressure Drag of Blunted Cones in Supersonic Flow, 41<sup>st</sup> AIAA Aerospace Sciences Meeting**

**SKILLS**

*Programming Languages (highly experienced):* PHP, MySQL, JavaScript, HTML, XML, CGI w/ Perl

*Programming Languages (familiarity):* C, C++, FORTRAN 77

*Platforms:* Windows, Linux, UNIX, DOS, MacOS

*Other Software/Methods:* LAMP, AJAX, MatLab, Mathematica, Microsoft Office, Dreamweaver, LabView, AutoCAD, TecPlot, Windows Networking, Eclipse, Apache, Plesk, Adobe Creative Suite, Corel Draw

**HONORS & ACTIVITIES**

**William F. Ballhaus Prize, Best Doctoral Thesis in Aeronautics, 2007**

**National Defense Science and Engineering Grant, 2001-2005**

**Sigma Gamma Tau, Aerospace Engineering Honor Society**

- President, Spring 2000, Spring 2001
- Vice-President, Spring 1999, Fall 2000
- Secretary, Fall 1999

**Applied Research Laboratories Honors Scholar Program, 2000-2001**

**Lockheed Martin Tactical Aircraft Systems Scholarship**

**Golden Key, 2000-2001**

**American Mensa, 2000**

**Gamma Beta Phi Honor Society, 1998**  
**American Institute of Aeronautics and Astronautics, 1997-2005**  
**University Honors, 1997-2000**

**LICENCES &  
CERTIFICATIONS**

California Real Estate Broker  
Google AdWords Professional