

# VITA

## DAVID BUHL

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## ***EDUCATION***

Doctor in Mathematics Education - Montana State University, *August 1995*

Master of Arts in Mathematics - University of South Dakota, *May 1990*

Bachelor of Arts in Mathematics - Augustana College, *May 1983*

## ***EMPLOYMENT HISTORY***

### Full Professor

Mathematics & Computer Science Department, Northern Michigan University. *August 2007 - Present*

### Associate Professor

Mathematics & Computer Science Department, Northern Michigan University. *August 2001 – August 2007*

### Assistant Professor

Mathematics & Computer Science Department, Northern Michigan University. *August 1998 - July 2001*

## ***RELEVANT SCHOLARSHIP/SERVICE***

### FIRST LEGO League Regional Competition

Coached a girl's middle-school aged team for FIRST LEGO League Robotics  
*2001-2007*

### NSF Panel Review

Served as panel reviewer for NSF Academies for Young Scientists (NSFAYS) program and Information Technology Experiences of Teachers (ITEST) programs. *2006, 2007, 2008*

### Strengthening STEM Education Through the Use of Standards-Based Assessments for Robotics Competitions.

Served as a framer for the NSF Symposium on Robotics Education. *May, 2006.*

### LEGO Robotics: Where's the Mathematics

Directed a Northern Michigan Faculty Research Grant. The focus of the project was to analyze the teaching/learning process of various mathematical concepts introduced in the context of Lego robotics.  
*June, 2003 - December, 2003*

### Vice-President, Michigan Council of Teachers of Mathematics

Served as an elected position with the Michigan Council of Teachers of Mathematics.  
*September, 2002 - September, 2004*

### Students Learning and Teaching Robotics Technology

Directed a \$20,000 Northern Michigan University Lab Technical Grant. The focus of the project was to equip the "Junior Robotics Lab" used to develop new teaching strategies incorporating LEGO Robotics.

*May, 2002 - Feb. 2003*

## ***PUBLICATIONS***

Enlightening Volumes: Curve Fitting to Approximate Volumes. The International Journal for Technology in Mathematics Education. *In press*.

Using Equations, Graphs, and Tables to Investigate the Maximum Volume of a Pup Tent. Spreadsheets in Education. *July, 2007*

Maximizing the Fit of a Box Spring up a Stairwell. Mathematics Teacher. National Council of Teachers of Mathematics. *November, 2006*

LEGO Robotics: Where's the Mathematics. Mathematics in Michigan. Michigan Council of Teachers of Mathematics. *Summer, 2003*

Measuring the Legend of Paul Bunyan, Mathematics Teaching in the Middle School. National Council of Teachers of Mathematics. *April, 2003*

"From the Beginning: A world of story problems through time", Michigan Council of Teachers of Mathematics monograph series. *October, 2001*.

"Kissing Pennies and Eating  $\pi$ ", Mathematics Teacher. National Council of Teachers of Mathematics. *October, 2000*

"Venn Diagrams: A brief, illustrated history", Mathematics in Michigan. *Spring, 2000*.

## ***CONFERENCE PRESENTATIONS***

### Fractal Dimension: A Classroom Activity

Co-presented with NMU mathematics education students at the Minnesota Council of Teachers of Mathematics Annual Meeting. Duluth, MN. *April, 2007*

### En(light)ening Volume.

Presented at the National Council of Supervisors of Mathematics Annual Meeting. St. Louis, MO. *April, 2006*.

### Robotics and Girl's Learning Mathematics: Coaching Lessons Learned.

Presented at the National Council of Teachers of Mathematics Annual Meeting. St. Louis, MO. *April, 2006*.

### Using Snag It Software to Create Instructional .avi for the Classroom.

Co-presented with NMU mathematics education student at the Minnesota Council of Teachers of Mathematics Annual Meeting. Duluth, MN. *April, 2006*

### Maximizing a Box Mattress: Will it Fit?

The Mathematical Association of America Upper Peninsula Regional Fall Meeting. Co-presented with Tom Martindale (NMU student) on using The Geometer's Sketchpad to investigate a popular maximum/minimum constraint problem. *September 2005*

#### LEGO Robotics: Where's the Mathematics

Invited presentation at the initial ROBOLAB national conference in Austin, Texas. The presentation focused on the learning and teaching of mathematics via LEGO Robotics technology. *August 2004*

#### LEGO, Robotics, and Learning

An invited presentation to the Mathematics Department at Montana State University. The presentation, "LEGO, Robotics, and Learning", focused on robotics education initiatives in the Upper Peninsula. *October 2003*

#### LEGO Robotics: Where's the Mathematics

Invited speaker at Montana State University's Mathematics Department. Presented on research work involving mathematics learning inherent with the building and programming of LEGO robotics. *October, 2003*

#### Rule of Three: Maximizing the Fit of a Mattress up a Stairwell

The Minnesota Council of Teachers of Mathematics annual meeting, Duluth, MN. Presented three solutions using *The Geometer's Sketchpad*, *Excel*, and *Maple* to solve this real-world problem. *April, 2003*

#### Mathematical Modeling in a Secondary Mathematics Pre-Service Course

The International Conference on Teaching Collegiate Mathematics annual meeting, Orlando, FL. Presented students' mathematical models incorporating *The Geometer's Sketchpad*, *Graphing Calculators*, and *Vernier Labpro*. *November, 2002*

#### Basics with LEGO Robotics

The Michigan Council of Teachers of Mathematics annual meeting, Marquette, MI. Presented a workshop concentrating on using LEGO Robotics in the classroom. *October, 2002*

#### From the Beginning: A world of story problems through time.

The Michigan Council of Teachers of Mathematics annual meeting, Grand Rapids, MI. Presented on Michigan Council of Teachers of Mathematic's monograph co-authored with Dr. McGinty. *October, 2001*

#### Using Calculator Programming as a Simulation Tool in the Classroom

The Minnesota Council of Teachers of Mathematics annual meeting, Duluth, MN. Co-presented with a Northern MSED student. The presentation focused on using calculator programming to simulate mathematical problems and their respective solutions for use in the secondary classroom. *April, 2001*

#### Kissing Pennies and Eating Pi

The School Science and Mathematics Association annual meeting, Albuquerque, NM. Co-presented a paper with a Northern Michigan University secondary mathematics education student. The paper investigated a unique derivation of  $\pi$  by adapting the "famous" kissing pennies problem. *October, 2000.*

#### Triangle Geometry – Activities for the Classroom

The School Science and Mathematics Association annual meeting, Albuquerque, NM. Co-presented a paper with a Northern Michigan University secondary mathematics education student. The paper investigated other "centers", lines, and n-point circles from the triangle centers covered in a traditional secondary mathematics classroom. *October, 2000.*