

# Joshua Holbrook

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## Skills and Qualifications:

- Proficient with GNU/Linux, MATLAB and python/scipy; and experience with javascript

## Education:

*Master of Science in Mechanical Engineering* Sept. 2009 – May. 2011  
*Thesis: The Determination of Anisotropic Thermal Conductivity with Thermal Needle Probe Measurement*  
3.62 GPA

*Bachelor of Science in Mechanical Engineering, Cum Laude* Aug. 2005 – May 2010  
*Minor in Mathematics* 3.67 GPA

*High School Diploma* May 2005  
3.73 GPA

## Projects:

*The Determination of Anisotropic Thermal Conductivity with Thermal Needle Probe Measurements* May 2010 – May 2011

- Masters Thesis
- Numerical component involving 3-D modeling with comsol and matlab to simulate thermal needle probe measurements
- Lab measurement component involving engineered anisotropic materials

*Node-Chess* August 28, 2010 – August 29th, 2010

- A Node Knockout contest submission
- Personally responsible for most of the art and some of the UI
- Written in only 48 hours
- Hosted at <http://dark-knights.no.de>

*Lulzbot* July 2010 – December 2010

- IRC Bot
- First significant project in javascript and node.js
- Watched github, checked weather
- Source at <https://github.com/jesusabdullah/lulzbot>

*Methlabs* June 2010 – August 2010

- A collection of tools for Matlab
- m-files inspired by functional programming paradigms such as those in Haskell
- Includes a python script that allows shebanged scripts to be interpreted by Matlab

*Counting of Stream Crossings Along a Path Between Two Given Alaskan Villages* March 2010 – May 2010

- Used python and qgis
- First experience with ESRI shapefiles and GIS in general
- Part of a feasibility study on laying unburied fiber optic cable over tundra in remote regions of Alaska

*Super Four-Bar Explorer* December 2008

- A program written in python that uses a Gauss-Newton unconstrained optimization algorithm to fit the path traced by a four bar linkage to a given set of points
- Accompanied by a spreadsheet that illustrates four-bar linkage traced paths

## **Service:**

*American Society of Mechanical Engineers, Student Chapter*      *September 2009 – May 2010*

- Administered web site and facebook page
- Volunteered at E-Week activities

## **Awards & Grants:**

*Center for Global Change Student Research Grant*      *May 2010*

- Project title: "Determining Anisotropic Thermal Conductivity of Snow with Needle Probe Measurements"
- Awarded \$8200

*3rd Place, 2010 Campus Research Day Undergraduate Symposium*      *April 9th, 2010*

- Project title: "Development and Benchmarking of Optical Touchscreen User Interface Technology"
- Awarded \$1000

*Undergraduate Research Grant*      *October 2009*

- Project title: "Development and Benchmarking of Optical Touchscreen User Interface Technology"
- Awarded \$2250

## **Employment History:**

*Teaching assistant*      *September 2010 – May 2011*

UAF Mechanical Engineering Department, Fairbanks AK

Job duties include:

- Grading homework and designing quizzes for ES 346, Basic Thermodynamics
- Grading homework for ME/ENVE 458/658, Energy and the Environment
- Grading homework for ME 403, Machine Design
- Redesigning and conducting laboratory experiments for ME 415, Thermal Systems Lab

*Research Assistant*      *January 2010 – August 2010*

UAF Institute of Northern Engineering, Fairbanks AK

Job duties include:

- Designing and running finite element models using COMSOL and MATLAB
- Analyzing geographical information using perl, python, MATLAB and C++

*Office Assistant*      *January 2008 – December 2009*

UAF Mechanical Engineering Department, Fairbanks AK

Job duties include:

- Tracking purchase information on UAF's Oracle database and compiling it into a human-readable form
- Facilitating communication between students, faculty and system administration

*Professor's Assistant*      *September 2008 – December 2008*

UAF Mechanical Engineering Department, Fairbanks AK

Job duties include:

- Grading and correcting homework assignments for ES 331, "Mechanics of Materials"

*Painter*      *May 2008 – August 2008*

UAF Conference Services, Fairbanks AK

Job duties include:

- Patching, painting and wet-sanding walls, ceilings, doors and trim

*Construction Laborer*      *May 2007 – June 2007*

Panco Construction, Talkeetna AK

Job duties include:

- Sanding, polishing and assisting in the fabrication of solid surface
- Stocking, staging and assisting in the install of countertops other materials

*Laboratory Assistant*

UAF Water and Environmental Research Center, Fairbanks AK

Job duties include:

- Taking inventory of chemical stock
- Tabulating, manipulating and organizing test data in Excel

*February 2007 – May 2007*

*Porter*

Aramark-Harrison Lodging, Denali National Park AK

Job duties include:

- Stocking; cleaning and maintaining public areas; and preparing rooms for guest arrival

*May 2006 – August 2006*