

**CV EXAMPLE:**

# Michael Anical

1000 Gopher Avenue #12  
Minneapolis, MN 55414

651-000-1212  
mechanical@umn.edu

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## EDUCATION

- Ph.D. Candidate, Mechanical Engineering** Expected May 2015  
College of Science and Engineering, University of Minnesota-Twin Cities Minneapolis, MN  
Dissertation title: "Numerical Study of Natural Convection in Solar Thermal Storage Vessels"
- Master of Science in Mechanical Engineering** May 2013  
College of Science and Engineering, University of Minnesota-Twin Cities Minneapolis, MN  
Thesis title: "Low Pressure Plasma Synthesis of Crystalline Silicon Nanoparticles"
- Bachelor of Mechanical Engineering** May 2011  
College of Science and Engineering, University of Minnesota-Twin Cities Minneapolis, MN

## RESEARCH EXPERIENCE

- Graduate Research Assistant, Particle Technology Lab** August 2011-present  
University of Minnesota-Twin Cities Minneapolis, MN
- Administer experimental and theoretical studies on the filtration of fractal aggregates
  - Sustain NSF funded research on real-time structure and mass measurements for agglomerated nanoparticles
  - Collaborate with area companies through Center for Filtration Research (CFR) to study mass loading and pressure drop on Nanofiber filters
  - Develop new modules for and maintaining a web-based software on filter performance evaluation, dust cake loading, and filter pleating design
  - Conduct numerical study on diffusion-limited aggregation of nanoparticles in laminar shear to find the relation between velocity gradient and aggregate fractal dimension
- Research Assistant, High Temperature and Plasma Laboratory** August 2010-May 2011  
Department of Mechanical Engineering, University of Minnesota-Twin Cities Minneapolis, MN
- Designed and optimized a low pressure silane plasma reactor to synthesize single crystal cube shaped silicon nanoparticles for electronic device applications
  - Examined and categorized nanoparticles on electron and atomic force microscopes
  - Characterized plasma particle system using electrostatic capacitance probe, white light absorption spectroscopy, optical emission spectroscopy, and laser light scattering
  - Assembled and maintained vacuum equipment for the experimental setup
  - Performed experiments for varying plasma conditions

## TEACHING EXPERIENCE

- Teaching Assistant, Graduate Level Course-Advanced Aerosol & Particle Engineering** January 2011-May 2011  
Department of Mechanical Engineering, University of Minnesota-Twin Cities Minneapolis, MN
- Conducted office hours to help students understand and solve homework problems
  - Prepared and graded homework solutions
  - Wrote weekly quizzes, posted solutions online, graded quizzes and exams, kept record of the scores using Excel
  - Collaborated with professors and other TA's on course material and grading policies, improving communication skills

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## PATENTS

- Integrated input roller having a rotary mass actuator Filed: April 2014
- Handheld device having multiple localized force feedback Filed: March 2014
- Tag for facilitating interaction with a wireless communication device Filed: March 2014

## AWARDS & FUNDING

- National Science Foundation Graduate Research Fellowship May 2013
- Mechanical Engineering Advanced Study Grant August 2012-May 2013
- Recognized as a "Ph.D. Student of Promise" by the American Society of Mechanical Engineers, nominated by Dr. Byron Labb June 2013
- Minnesota Society of Professional Engineers Graduate Student Scholarship August 2013-present
- North Star Stem Alliance Scholar, University of Minnesota August 2007-May 2011

## SCHOLARSHIP

### Publications

#### Journal publications

- **Anical, Michael**, John Author, Anne Gineer. Journal article title. International Journal of Mechanical Engineering, 2013; Under review.
- **Anical, Michael**, Goldy Article, Grant Riter. Journal article title. International Journal of Mechanical Engineering, 2012; 126 (56-70): 1020-1056.
- **Anical, Michael**, Rita Journal, Andy Mann. Journal article title. International Journal of Mechanical Engineering, 2011; 122 (43-52): 894-906.

#### Conference publications

- Author, Mark, **Michael Anical**, Tom Article. Title. Conference title, Conference City, State, 2012.
- Author, Mark, **Michael Anical**, Tom Article. Title. Conference title, Conference City, State, 2011.

### Presentations

- Presented "Numerical Study of Natural Convection in Solar Thermal Storage Vessels" at the Minnesota Society of Professional Engineers Conference, St. Paul, MN, September 19-22, 2013.
- Presented "Numerical Study of Natural Convection in Solar Thermal Storage Vessels" at the American Society of Mechanical Engineers Conference, St. Louis, MO, June 4-7, 2013.
- Presented "Real-Time Automotive Slip Angle Estimation with Nonlinear Observer" at American Control Conference, Auburn, AL, January 12-15, 2013.
- Presented "Low Pressure Plasma Synthesis of Crystalline Silicon Nanoparticles" at University of Minnesota Master Thesis Event, Minneapolis, MN, May 2, 2010.
- Presented robot at University of Minnesota Robot Show Fall, Minneapolis, MN, December 8, 2008.

### Posters

- "Low Pressure Plasma Synthesis of Crystalline Silicon Nanoparticles," Minnesota Society of Professional Engineers Conference, Minneapolis, MN, September 20-24, 2010.

## PROFESSIONAL MEMBERSHIPS

- **International Association of Mechanical Engineers** August 2010-present
- **American Society of Mechanical Engineers** August 2009-present
- **Minnesota Society of Professional Engineers** August 2008-present

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## INDUSTRY EXPERIENCE

### Engineering Intern

The XYZ Company

May 2010-August 2010

Minneapolis, MN

- Researched and developed a solution to manufacturing problems that include ergonomics, structural failures, flow impedances, and quality issues
- Justified the purchasing of new office equipment through the use of statistical analysis and presented findings to the supervisor and other interns
- Improved the manufacturing of modular enclosures through the implementation of lean manufacturing and six sigma capability studies
- Collaborated with four other interns on a variety of projects and improved my teamwork and communication skills

## SERVICE

### Professional

- Reviewer for the University Executive Council of Graduate and Professional Student Professional Advancement Grants

Fall 2012

### Community

- Volunteer, Annual Blood Drive-American Red Cross, St. Paul, MN
- AmeriCorps Volunteer, MN Math Corps, St. Paul, MN

May 2009-present

June 2011-July 2011

## REFERENCES

### Dr. Gordon Gopher, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

goldy@umn.edu

Relationship: Professor and mentor for 4 years

### Dr. Byron Labb, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

blabb@umn.edu

Relationship: Ph. D. advisor for 3 years

### Dr. Mark Machine, Professor

Department of Mechanical Engineering

University of Minnesota-Twin Cities

124 Minnesota Lane

Minneapolis, MN 55414

651-555-7799

mmachine@umn.edu

Relationship: Teaching assistant advisor and mentor for 3 years