Max Plomer

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**Career Profile**

A Mechanical Engineer experienced in creatively solving challenging problems with a broad range of engineering and computer programming skills. Proven ability for scientific programming, heat transfer & thermodynamics, gas-phase chemical reactions, finite volume analysis, fluid and solid mechanics, electricity. Seeking a corporate environment that will give me hands-on experience in the clean energy industry.

**Education**

**University of Connecticut** Storrs, CT

*Master of Science in Mechanical Engineering*, GPA: 3.5/4.0 2013

 Relevant coursework: Classical Mechanics, Feedback Control of Dynamic Systems (Includes Electric Circuits)

**University of Connecticut** Storrs, CT

*Bachelor of Science in Mechanical Engineering* 2010

 Relevant coursework: Physics for Engineers 2 (Electricity and Magnetism), Electronic Circuit Analysis

**Work Experience**

**University of Connecticut** Storrs, CT

*Teaching Assistant for Combustion, Compressible Flow, Renewable Energy, Senior Design Project* 2011-2013

 Revised homework solutions to be more concise

 Tutored students independently and in groups during office hours

 Graded homework quickly and fairly, then accurately tracked student grades throughout semester

**Paradime LTD** North Salem, NY

*Designer of Laboratory Documentation / Lab Technician* 2007

 Developed FDA regulatory documentation for a dietary supplement company that allowed lab technicians to document batches and carefully follow procedures

 Assessed and maintained machines that depend on thermodynamic and other engineering principals, such as freeze dryers and centrifuges

**Self-Employed** Wilton, CT

*Computer Repair / Teaching* 2000-2004

 Scheduled in-home appointments covering installing new hardware such as extra hard drives and multiple monitor video cards, formatting virus-infected computers, setting up computer networks

**Research Projects**

**Computing Package for Thermal Gas-Phase Chemical Reactions**

 Programmed chemical kinetics software package that validates against CHEMKIN, but is simplified because it uses a higher-level programming language

 Investigated CHEMKIN-II mechanism format, NASA polynomials for thermodynamic data, Arrhenius/Lindeman/Troe form reactions, programming language speeds and license costs

 Used MATLAB profiler to improve inefficiencies; time to converge constant volume reactor was reduced from 619 sec in initial version to 0.8 sec, which is substantially closer to CHEMKIN converge time of 0.5 sec

**Effect of Environmental Temperature on Efficiency of Solar Thermal Power Plants**

 Generated basic model of solar thermal energy storage using fundamental heat transfer and thermodynamics solutions

 For the chosen parameters, 1 inch of aerogel insulation with thermal conductivity of 0.03 W/(m\*K), environmental temperature of 0 , 12 hours after charging the thermal storage unit to 1000 calculated an efficiency due to heat loss of 99.3% and a heat engine Carnot efficiency of 78.6%

 Discovered when lowering environmental temperature, Carnot efficiency increases faster than heat loss efficiency decreases, therefore found higher total efficiency at lower environmental temperature

**Technology Skills**

ANSYS Fluent, COMSOL Multiphysics, CHEMKIN, MATLAB, C, JavaScript, Fortran, Linux, Amazon Cloud