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