

Greg Linder

Renewable Energy Controls Engineer

glinder@linderlabs.com

217.621.2372

<http://www.linderlabs.com/glinder/>

Objective

I have a passionate interest in renewable energy and over 10 years of experience solving varied multidisciplinary engineering problems. I work long hours, invent and implement new solutions, and cooperate vigorously with others. My present objective is to use my skills and knowledge to assist with the integration of renewable energy systems into the control and dispatch networks of the electric utility industry. This includes the integration of "smart grid" systems and modern control protocols, including 61850, DNP3, and Modbus.

Qualifications

- Extensive experience and coursework in renewable energy including solar, wind, and digesters
- 8 years experience in embedded system design using multiple types of microcontrollers
- 5 years experience in PLC system design and implementation
- 3 years PCB design and layout experience
- Extensive international travel and multicultural collaboration experience
- Highly collaborative and friendly personality
- Working knowledge of many things including solar panel manufacturing, machine tool operation, embedded systems programming of many sorts, SCADA systems, power electronics design and testing, rigging, circuit board layout, electronics repair and installation, electric machinery and drives, computer networking, pneumatic and hydraulic systems, electrical codes, scuba diving, high vacuum systems, carbon fiber layup and autoclave procedures, swing dancing, battery technologies, commercial and residential wiring standards, singing, control panel design and layout

Education

- MSEE, Clarkson University, May 2009.
- BSEE, University of Illinois Urbana-Champaign, May 2005
- Completed coursework required for a BS in Computer Engineering also at University of Illinois
- Extensive study in Photovoltaic Engineering in 2003-2004 from University of New South Wales, Sydney, Australia.

Professional Memberships and Certifications

- EIT / FE certification (2005)
- Field service certifications for ETC, Leviton, and Strong lighting equipment suppliers
- IEEE member since 2003, particularly active in the PES (Power & Energy Society)
- American Solar Energy Society (ASES) member since 2007
- American Society of Agricultural and Biological Engineers (ASABE) member since 2009
- SunSpec Alliance Member
- Amateur Extra radio licensee, call: KC9OPU
- ARRL (American Radio Relay League) member since 2009
- NIST SGIP (Smart Grid Interoperability Panel) contributor since 2009

Experience

- **Linder Engineering Works, LLC: Founder** (Denver, Colorado) (2010 – Present)
 - Provides consulting services and design engineering services for numerous industries
 - Integrating SunSpec Alliance solar data protocols with industrial control protocols
 - Integrating industrial and wireless mesh data communications protocols
 - Designing and constructing prototype embedded systems
- **Clarkson University: Research Assistant** (Potsdam, New York) (2007-2009)
 - SCADA system design for the Clarkson Anaerobic Manure Digester project
 - Designed and built 500 gallon trailer-mounted portable anaerobic digester
 - MS Thesis, “Failure Analysis and Smart Grid Control Protocols for Anaerobic Digesters”
- **SolFocus Inc: Intern** (Mountain View, California) (Summer 2008)
 - Assisted with installation and commissioning of SolFocus solar tracking systems
 - Installed and configured equipment for solar telemetry and control systems
 - Advocated the use of utility-standard control protocols and hardware to solar field control
- **Chicago Spotlight: Field Service Technician** (Chicago, Illinois) (2006-2007)
 - Installed and commissioned building-integrated lighting control networks
 - Trained others in the use and installation of dimming and control equipment
 - Worked with union electricians in the installation of lighting control systems
 - Repaired numerous theatrical electrical systems, including automated fixtures, follow spots, lighting control consoles, and dimming equipment
- **SmartSpark Energy Systems: Embedded Systems Engineer** (Champaign, Illinois) (2005-2006)
 - Designed and built a large scale PLC based water-immersion battery cycling test system
 - Wrote firmware for family of proprietary PIC-based non-dissipative battery charge balancing systems
 - Designed and built family of small-scale low power data acquisition systems for battery characterization
- **U of I Future Energy Challenge 2004: Controls Team Leader** (Urbana-Champaign, Illinois) (2004-2005)
 - Controls team leader for the design of experimental high-efficiency 500 watt variable frequency drive
 - Designed and wrote PIC18 firmware in assembly language
 - Designed and built hand-wired prototype hardware to test code prior to PCB completion
 - Laid out multiple mixed-signal circuit boards containing power inverter, control and isolated communications sections
 - Performed significant characterization, debugging, and testing work using dynamometers and power measuring equipment
- **UNSW Solar Racing Team: Mechanical Team Leader** (Sydney, Australia) (2003-2004)
 - Race Team member competing with the UNSW Sunswift II solar car in the 2003 World Solar Challenge
 - Mechanical Team Leader for the initial design phase of the UNSW Sunswift III
 - Negotiated sponsorship contracts for fiberglass materials supply, mold release agents, and large-scale CNC machining for the initial tooling
 - Directed mechanical design efforts for Sunswift III, including steering systems, suspension, trailer, monocoque chassis, and composite materials
 - Assisted with design and debugging of soft-switched maximum power point tracker
 - Actively sought opportunities to present on high efficiency transportation technologies via radio interviews, NRMA shows and CeBIT Australia

- **George L. Clark X-ray Facility: Student Employee** (Urbana, Illinois) (2000-2005)
 - Designed custom cable support bracket to address design oversights in Kappa-geometry diffractometer
 - Performed maintenance and repair work on x-ray diffraction equipment
- **Fermi National Accelerator Lab: Intern** (Batavia, Illinois) (2001-2003)
 - Designed and constructed semi-automatic RF test stands for particle accelerating structures
 - Performed preliminary design work for a fully automated high-volume RF disk testing and sorting system
 - Assisted with the installation, leak checking, and acceptance procedures of a large vacuum brazing furnace
 - Recovered presumed-lost magnet data and Fortran code from legacy VAX/VMS systems
- **University of Illinois School of Chemical Sciences: Undergraduate Research Assistant** (2001-2002)
 - Designed and built in-situ platinum polishing attachment for a kappa-geometry x-ray diffraction instrument
- **Aberle GmbH & Company: Apprentice** (Gutach, Germany) (2000)
 - Performed shop floor tasks, including manufacturing parts, programming machines, and quality control
 - Assisted ISO 9001 compliance documentation
- **Norris Cultural Arts Center: Crew** (St. Charles, Illinois) (1997-2000)
 - Responsible for maintenance of theatrical electrical systems, sound equipment, rigging and hydraulics
 - Performed in run crew roles, including set construction, lighting and sound design, fly rail operation, and special effects

Publications

1. Romanov, Gennady, Tug Arkan, Harry Carter, Timergali Khabiboulline, Gregory Linder. *Measurements of high order modes in high phase advance damped detuned accelerating structure for the NLC*. Proceedings of LINAC 2004, Lubeck, Germany.
2. Linder, Greg. *Failure Analysis and Smart Grid Control Protocols for Anaerobic Digesters*. [Thesis] Clarkson University, May 2009
3. Linder, Greg. *The Importance of Standard SCADA Protocols to the Reliable Operation of Distributed Farm-Scale Anaerobic Digesters*. Presented at 2009 IEEE PES Power Systems Conference and Exposition, Seattle, Washington
4. Linder, Greg, Stefan Grimberg, Ph.D., Eric Thacher, Ph.D. Shaun Jones. *Implementation of a Distributed Standard Anaerobic Digester Control System Based on Observations from Real World Failure Analysis*. Presented at 2009 ASABE Annual International Meeting
5. Linder, Greg, Stefan Grimberg, Ph. D. *Comparison of Monitoring Systems for Anaerobic Digesters*. Presented at 2010 IEEE Power & Energy Society Conf., New Orleans, Louisiana