

# Joseph Carrow

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## EDUCATION

### **Rensselaer Polytechnic Institute**

*Troy, New York* [Awarded Aug. 2004]

Bachelor of Science, Mechanical Engineering & Science, Technology, and Society Studies

## SKILLS

**Certified Solidworks Professional**, experience with **CosmosWorks**, and **Solidworks Enterprise PDM**. Familiarity with **I-DEAS** for 3D modeling and simulation, and PDM with **Teamcenter** and **SAP**. Basic electronic instrumentation with knowledge of battery systems, analog electronics, DC motors, and motor control. Prototyping in **Labview**, and **C. Microsoft Office Suite** including advanced use of **Excel**. Design for **injection molding**, and use of diverse manufacturing processes for rapid prototyping and proofs of concept.

## WORK EXPERIENCE

### **IntegenX, Mechanical Engineer**

*Pleasanton, California* [Oct 2008 – June 2012]

- Designed a disposable plastic cartridge for minimally trained non-expert users for **RapidHIT200** rapid human identification system. Design included injection molding, destructible rubber seal, adhesive selection, high voltage interface, human factors, materials compatibility testing destructive test, and work with Operations department to formalize assembly and filling procedure as the cartridge ramps up production to medium volume manufacturing.
- Designed the Anode Interface Module for the RapidHIT200 system. S
- Designed thermal and mechanical support for capillaries in the capillary electrophoresis (C.E.) subsystem, meeting design requirements for thermal uniformity, focal adjustment range, resolution, and stability in a breadboard environment.
- Redesigned superparamagnetic bead agitator for reliability.
- Lead design of matrix injection subsystem for C.E. by minimally trained expert users in four channel breadboard instrument.
- Integrated microfluidic base stations into compact unified assembly to use a microfluidic cartridge.
- Design of injection molded microfluidic manifolds, creating interface between macro and micro fluidics

### **Siemens Medical, Product Engineer II**

*Concord, California* [May 2007 – Oct 2008]

- Redesigned X-ray defining light for IEC compliance by tripling brightness and doubling contrast. New design decreased power use by 95 per cent and lengthened replacement schedule by factor of twelve. Estimated annual savings of \$1.5 million if deployed under all active service contracts.
- Performed root cause analysis of prematurely failing X-ray target, verified results with transient and steady state thermal simulation, and redesigned component for improved reliability.
- Simulated stress and deflection of steel structures and mechanisms using I-DEAS model solver.
- Planned and carried out accelerated life test of new product, refined design for release to production.
- Detailed documentation of medical flat panel imager using I-DEAS, Teamcenter, and SAP.

### **Daedalus Wings, Inc., Mechanical Engineer**

*San Francisco, California* [Oct. 2006 – Feb. 2007]

- Designed control system for lever-powered wheelchair, the Rio Mobility Pivot™.
- Designed, built, and tested prototypes of powered attachment for manual wheelchairs.
- Prepared National Science Foundation phase 1 grant final report for Attachable Handcycle project.
- Simulated parts and mechanisms in Solidworks with CosmosWorks

### **World Energy Labs, Mechanical Engineer**

*San Francisco, California* [Aug. 2004 – Oct. 2006]

- Designed sheet metal, milled plastic, and cable assemblies for low-to-medium volume manufacture.
- Managed design of premium product accessory with third party engineering design firm.
- Created assembly and test procedures for hand held frequency response analyzer.
- Carried out functional test of software/firmware, and trained technical support department.

### **COMMUNITY INVOLVEMENT**

**Bay Area Outreach and Recreation Program (BORP), Volunteer** *Berkeley, California* [Sept. 2006 – present]  
Provide equipment management support and engineering in design, creation and maintenance of wheelchair mounted sport equipment for power soccer program.

**RPI Tau Beta Pi Competition, Independent Entrant** *Troy, New York* [Spring 2003 / Spring 2004]

Conceived and fabricated original egg drop vehicle under time and material constraint regulations. Placed first among approximately 50 engineering students in both 2003 and 2004 competitions.

**Architecture for Humanity Mobile AIDS Clinic Contest, Team Leader** *New York, New York* [Fall 2002]

Designed mobile AIDS clinic; presented plan in visual and written format, winning honorable mention. Competition included over 600 professional architecture and industrial design entries.