# Jacqueline Song

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## EDUCATION

**The Cooper Union for the Advancement of Science and Art**, New York, NY
- *Bachelor of Engineering*, Mechanical Engineering, expected May 2015
- Full-tuition scholarship *2011-2015*
- *Cumulative GPA: 3.7/4.0*

## EXPERIENCE

**Hardware Engineer** at Matterport, Mountain View, CA *Summer 2014*
- Relieved camera production bottleneck by building linear motion system and controls to automate labor-intensive calibration movements.
- Specified imaging hardware and developed evaluation procedures for candidate components.
- Supported engineering activities including hardware troubleshooting, reverse engineering, and process documentation.

**Mechanical Design Engineer** at Social Bicycles, New York, NY *Spring 2014*
- Supported design team in redesign of bicycle locking mechanism for improved manufacturability and ease of use.
- Prepared electronics housing components for injection molding using SolidWorks.

**Teaching Assistant** for Design and Prototyping, Prof. Eric Lima, The Cooper Union *2013-2014*
- Developed machine design project that gave students hands-on experience in designing, building, and troubleshooting electromechanical systems.
- Led students through prototyping tasks in laser cutting, machining, and injection molding.

**Electromechanical Engineer** at Carson Optical, Hauppauge, NY *Summer 2013*
- Designed and prototyped novel optical and electromechanical systems, working independently and in teams; developed one consumer product from concept to manufacture.
- Optimized injection-molded parts in SolidWorks for manufacture and assembly.

**Consultant** for *LURE*, MaDora Frey, New York, NY *2012–2013*
- Advised client from concept to manufacturing of kinetic sculptures for gallery exhibition.
- Delivered working prototype sculptures, including aesthetics, mechanisms, and control system.

## PROJECTS

**Curved Layer Carbon Fiber Reinforced Polymer FDM** *Capstone Senior Design, 2014–2015*
- Develop manufacturing process and curved layer Fused Deposition Modeling (FDM) printing method for continuous carbon fiber reinforced thermoplastic filament.
- Optimize carbon fiber orientation in prints using ANSYS Workbench; verify experimentally.
- Modify RepRap 3D printing toolchain to print curved-layer FDM parts using a FANUC industrial robot arm.

**Notchmatic** *Design Elements/Mechanical Design, 2014-2015*
- Lead the design and build effort on workpiece fixturing subassembly for an industrial tube notching machine; collaborate with teammates on cost, scheduling, and systems integration.
- Create sane team workflow by training teammates in effective use of Git.
- Develop safety, usage, and installation manuals for future school machine shop use.

**Arduino Robot Pac-Man** *Microcontroller Projects, 2012*
- Designed and implemented Arduino-based autonomous and remote-controlled robots and a robot-sensing dot matrix maze based on the classic arcade game.

**Gumball Machine** *Principles of Design, 2011*
- Designed and built an Arduino controlled electromechanical gumball dispenser game featuring interactive mechanical paths, including a 3-axis crane arm and binary logic puzzle.

## SKILLS

**Computer**: proficient in SolidWorks, C++, ANSYS Workbench, MATLAB, AutoCAD, LabView, Git, Python, Linux, LaTeX, HTML/CSS/Javascript, Adobe CS, Microsoft Office.
**Mechatronics**: mechanical design; motor and actuator control; digital logic design; PCB design; sensor integration; microcontroller systems; Arduino and Phidgets.
**Manufacturing processes**: design for injection molding, machining, welding, casting, plasma cutting.
**Machine shop**: comfortable with TIG welding, mill, lathe, drill press, rotary tools, hand tools.