

JEREMY E. BLUM

CURRICULUM VITAE

IN A NUTSHELL: *I am an electrical engineer, product designer, and leader. I build products and produce content that inspire and empower people. My goal is to equip people with the tools they need to improve their lives and the lives of others.*

RECENT EXPERIENCE



SHAPER TOOLS *shapertools.com*

Head of Electrical Engineering · Nov '15 – Now

Direct the electrical design of the world's first smart, handheld power tools. Leverage computer vision, embedded systems, and real-time motor control to build user-friendly power tools.



GOOGLE/ALPHABET *google.com/glass*

Electrical Architecture/Engineering Technical Lead · Jan '15 – Nov '15
Lead electrical system architect/engineer for confidential consumer hardware product.

Google [X] "Hardware Astronaut" · Aug '13 – Jan '15

Designed electronics and complex electromechanical systems for Google Glass within Google's [X] division.



BLUM IDEA LABS *blumidealabs.com*

Owner & Mad Scientist · Jun '12 - Now

Formed LLC to brand my consulting, content production services, freelance writing, and creative development projects. Built advertising and content-based revenue stream. Frequently give back to the community in the form of open-source hardware and software, educational workshops, and by frequently redirecting royalties to STEAM education non-profits.



SUNN *sunnlight.com*

Board of Directors · Aug '13 – Now

Technical advisor & board member.

Co-Founder and CTO · Aug '12 – Aug '13

Co-founded company and served as CTO. Designed the electronics and software algorithms for a high-efficiency LED lighting system that emulates natural sunlight.



MAKERBOT INDUSTRIES *makerbot.com*

R&D Electrical Engineer · May '11 – Jan '13

Designed the electronics for the "Replicator" 3D printer and the electronics/firmware for the "Digitizer" 3D scanner prototype.

EDUCATION



CORNELL UNIVERSITY

M.Eng. Electrical and Computer Engineering '13

President's Sustainable Campus Committee · Entrepreneurship Steering Committee · Red Ideas Scholar · PopShop Co-Working Space Founder and Manager · Creative Machines Lab & Pollock Lab Researcher · Cornell University Sustainable Design Advisor · Interact ATX Fellow · eLab Startup Incubator

B.S. Electrical and Computer Engineering '12

Cum Laude · Presidential Research Scholar · Kessler Entrepreneurship Fellow · Quill & Dagger Honor Society · NYCTech Student Committee · Creative Machines Lab Researcher · Cornell University Sustainable Design Founder and Executive Director

GET IN TOUCH



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BY THE NUMBERS

111,000+

YouTube subscribers

11 million+

Unique views of my videos

100+

News sources and blogs featuring or reporting on my work

3

Times I've briefly lost feeling in my hand due to electrical shock

3 million+

Unique views of my websites

4

Languages my book is available in

200

of people who controlled my web-connected M.Eng. graduation cap

Too many

Number of devices in my house that I've connected to the internet



Ways in which thoughtful design and engineering can improve the world

ADDITIONAL HIGHLIGHTS & EXPERIENCE



JARVIS jarvis.jeremyblum.com

Creator · Work-in-Progress

Engineering a home-automation platform with a focus on natural language interfaces and tactile interactions. Current prototype enables voice, phone, and “command center” control of lights, music, window shades, weather reports, alarms, and more. Includes custom-fabbed PCBs and is built on modern frameworks including Python, Flask, NodeJS, wit.ai, and socket.io. Featured in *The Wall Street Journal*.



EXPLORING ARDUINO exploringarduino.com

Author · Published Summer '13

Wrote “Exploring Arduino: Tools and Techniques for Engineering Wizardry,” (Wiley) a 350-page book introducing all audiences to electrical engineering and computer science using the Arduino microcontroller platform. Translated, to date, into Korean, Spanish, and Russian. Used as a textbook at universities worldwide.



BLUESTAMP ENGINEERING bluestampengineering.com

NYC Lead Instructor · Summer '12

Taught electrical, computer, and mechanical engineering concepts to high school students in an intensive 6-week program. Managed two TA's and worked closely with each student.



POPSHOP CO-WORKING SPACE popright.in

Co-Founder & Manager · Mar '12 – Jun '13

Created an entrepreneurial workspace near Cornell's campus to encourage student collaboration in inventing and crafting marketable products. Managed the budget, constitution, planning/execution of events, and guest speaker series. Oversaw day-to-day operation.



ELEMENT14 element14.com/exploringarduino

Content Creator & Community Expert · Jan '11 – Jun '13

Created electrical engineering videos, fielded questions, and wrote blogs. Videos viewed by thousands daily.



CORNELL UNIVERSITY SUSTAINABLE DESIGN cusd.cornell.edu

Founder & Executive Director · Nov '09 – Jun '13

Developed design-build team and interdisciplinary curriculum to address sustainability issues through research, design, and construction. Projects included construction of award-winning S. African schoolhouse, Neighborhood in Nicaragua, and design advising for the Cornell Tech Campus in New York City.



DEKA R&D dekaresearch.com/deka_arm.shtml

Electrical Engineering Intern · Summer '10

Designed and tested next-generation electronics for the “LUKE” prosthetic arm.



ELECTRICAL SCIENCE electricalscience.com

Engineering Consultant · Summer '08 & '09

Engaged in VoIP gateway development, Linux system administration, cellular analysis, and development of water usage tracking system.



CORNELL SOLAR DECATHLON

Controls Leader & Webmaster · Sep '08 – Oct '09

Engineering controls team leader, automation/entertainment sponsorship facilitator, website scripting for solar-powered “Silo House.”



CONVOLVE

Engineering Intern · Summer '08

Built “DeepNote” robot capable of playing Guitar Hero video game with 99% accuracy.



ULTIMATECOMPUTERS.NET

Founder & Admin · May '07 – Jan '11

Developed a successful, advertising-supported online community for computer-building enthusiasts.



ARMONK COMPUTER SOLUTIONS

Founder, Technician · Nov '04 – Nov '10

Ran computer repair company. Certified CompTia A+ Technician.



ILLUSION MONTAGES

Founder · May '03 – May '08

Launched and ran a highly successful video montage business.

TECHNICAL SKILLS

Electrical Architecture Design	■■■■■
Rapid Prototyping	■■■■■
Circuit Design & Debugging	■■■■■
Flex & Rigid PCB Design and Fab	■■■■■
Arduino Language/Processing	■■■■■
Eagle CAD	■■■■■
3D Printing	■■■■■
Microcontroller Development	■■■■■
Altium Designer	■■■■■
Design for Manufacturing	■■■■■
ESD, and EMI Design Practices	■■■■■
Cadence Orcad	■■■■■
Cadence Design Entry HDL	■■■■■
3D Modeling	■■■■■
Lasercutting	■■■■■
Adobe Creative Cloud	■■■■■
Python	■■■■■
Modern Web Languages	■■■■■
Git	■■■■■
MATLAB	■■■■■
Embedded C	■■■■■
Linux Scripting/Admin	■■■■■
Cadence Allegro	■■■■■
SPICE	■■■■■
Woodworking	■■■■■

SOFT SKILLS

Large & Small Group Leadership	■■■■■
Project & Product Management	■■■■■
Technical Writing	■■■■■
Public Speaking and Teaching	■■■■■
Social Media/Brand Management	■■■■■
Photography & Videography	■■■■■

TIMELINE

	Started working as Head of Electrical Engineering at Shaper.
	Technical editor for publication of "The Makers Guide to the Zombie Apocalypse."
	J.A.R.V.I.S. Home Automation System featured on the front page of <i>The Wall Street Journal</i> .
	Raised \$6000 to support women in engineering, through "Exploring Arduino" royalties and a Google match.
	"Exploring Arduino" translated into Russian.
	"RainCloud" web-connected umbrella stand featured in <i>Popular Science Magazine</i> .
	Assume a technical leadership position on Google Glass team.
	"Exploring Arduino" translated into Spanish.
'15	"RainCloud" web-connected umbrella stand featured on flyers at Radioshack.
	"Exploring Arduino" translated into Korean.
	Featured in Cornell University's engineering school branding campaign.
	Raised \$4000 to support engineering education, through "Exploring Arduino" royalties and a Google match.
'14	Featured in <i>Circuit Cellar Magazine</i> .
	"Machine Metabolism" research published in peer-reviewed <i>IEEE Robotics and Automation Journal</i> .
	Provided educational resources for the Trans-African Hydro-Meteorological Observatory (TAHMO) project.
	Subject of a Viennese art exhibit.
	Moved to San Francisco to join the GLASS team at Google [X].
	Authored "Exploring Arduino," introducing readers to engineering.
	Connected my M.Eng. graduation cap to the internet and let the world control it.
	Presented SUNN at the World Science Festival, business plan competitions, and Cornell Expos, winning countless awards.
	One of five 2013 Cornell Red Ideas Scholars. Speaker at Red Ideas Festival.
	Presented my Hybrid Fiber Optic Lighting system at the National Sustainable Design Expo in Washington, DC.
	Showcased my robotics research at TechKriti '13 in Kanpur, India alongside astronauts, architects, musicians, and Nobel Laureates.
	Designed all the electronics and firmware for the MakerBot Digitizer 3D Scanner prototype announced at SXSW '13.
	Attended SXSW '13 as one of 80 Interact ATX Fellows representing America's best young entrepreneurs.
'13	

I SPEAK.

I love public speaking. I gave a TEDx talk about open-source, an Ignite talk about engineering education, and I've presented my research and projects to large audiences around the world.

I TEACH.

I've taught at engineering camps, the Brooklyn Children's Museum, the Harlem Children's Zone, the Intrepid Museum, and at schools around the country. I teach international audiences via my online videos and collaborate with STEM programs to develop curriculums for the next generation of engineers.

I FILM.

I've had an active YouTube channel since 2006 where I produce and post educational videos about engineering and science. I'm a YouTube EDU Partner, and my videos have inspired thousands to pursue careers in engineering around the world.

I HACK.

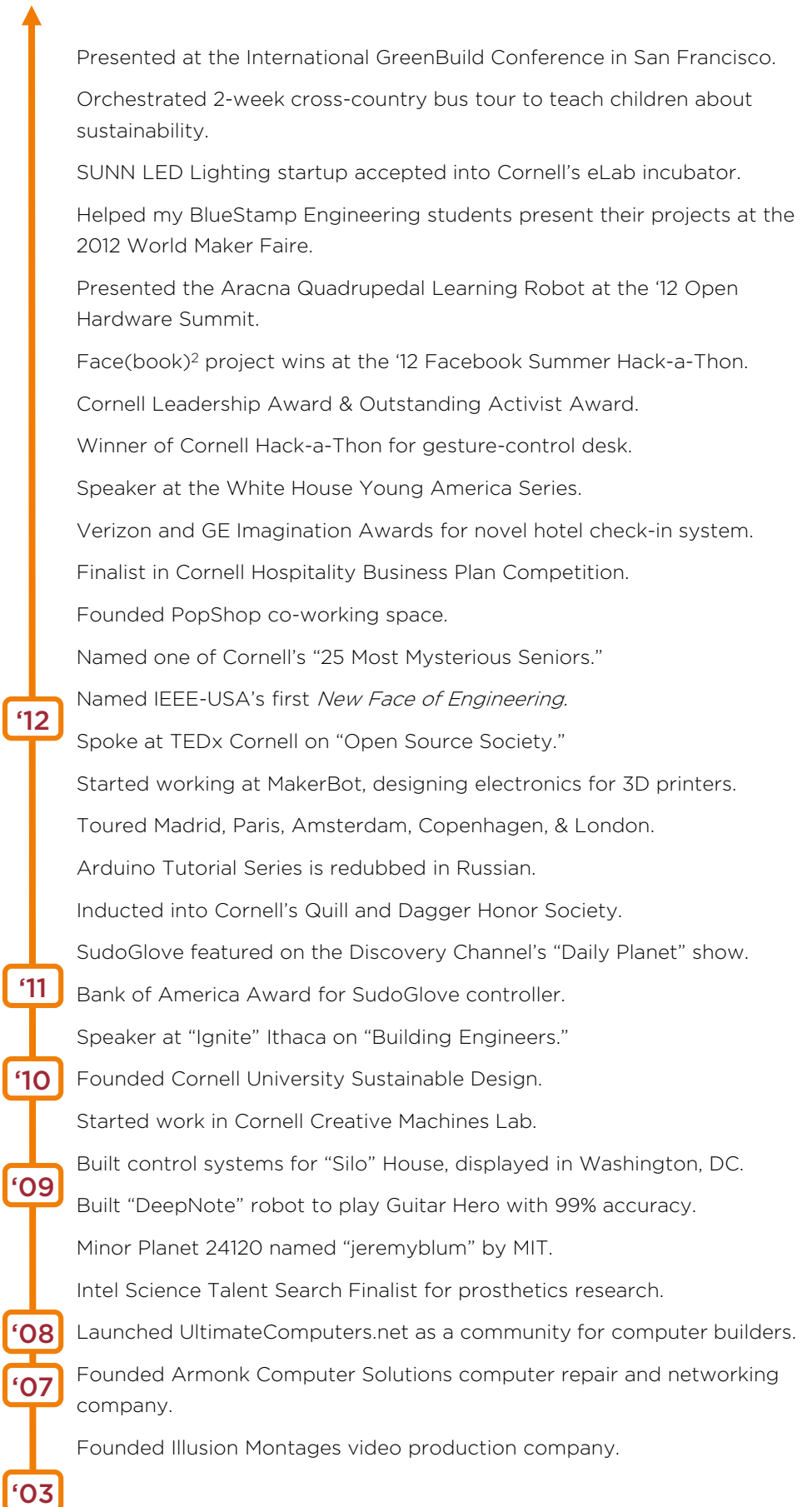
Engineering is not just my job description, it's my pastime. I document all my projects on my website - everything from art displays to gesture controllers. I release my plans freely under open source licenses to encourage creativity within the worldwide "maker" community.

I START UP.

I've worked for start-ups, and I've started my own. Some are successful, and some are not - I relish the learning opportunities that come from my failures. I frequently advise future entrepreneurs, and am on the advisor boards for several VCs, incubators, and startups.

I ADVOCATE.

Energy sustainability, education, and open source are all issues for which I advocate, both online and in the real world. Whenever possible, I utilize my experience in these fields to teach school-age children.



HYBRID FIBER OPTIC LED LIGHTING

Pollock Light Lab & Schneider Lab · Sep '12 – May '13

Designed complete lighting system, leveraging fiber optics and color-tuned LEDs with an algorithmic control system to bring natural light into deep interior spaces.

Award: 1st Place at annual Cornell ECE poster competition

Presented: National Sustainable Design Expo in Washington, DC

Grant: \$15,000 Environmental Protection Agency P3 Research Grant

EXTRUDED 3D METAL PRINTING

Creative Machines Lab · Sep '12 – May '13

Developed techniques for extruded metal coil printing to contribute to the eventual, fully automated fabrication of an electromagnetic induction motor and speaker.

ARACNA QUADRUPEDAL ROBOT creativemachines.cornell.edu/aracna

Creative Machines Lab · Mar '12 – Mar '13

Electrical and firmware development of an open-source robot capable of teaching itself to walk using machine learning techniques.

Publication: “Aracna: An open-source quadruped platform for evolutionary robotics.” In Proceedings of the 13th International Conference on the Synthesis and Simulation of Living Systems, '12

Presented: ALife '13 and Techkriti '13 in Kanpur, India

FAB@HOME 3D PRINTER fabathome.org

Creative Machines Lab · Sep '11 – May '12

Electrical team leader for development of highly-accessible, open-source, multi-material 3D printer.

STOCHASTIC SELF-ASSEMBLY creativemachines.cornell.edu/stochastic-modular-assembly

Creative Machines Lab · Sep '10 – May '11

Electrical design, fabrication, and programming for autonomous micro-scale components of “programmable matter” system.

MACHINE METABOLISM creativemachines.cornell.edu/machine-metabolism

Creative Machines Lab · Sep '09 – May '11

Development of electrical systems and programming for use with structure-modifying robots capable of reconfiguring a truss structure.

Publication: “Structure-Reconfiguring Robots: Autonomous Truss Reconfiguration and Manipulation” in IEEE Robotics & Automation Magazine (Volume 20, Issue 3, Pg. 60-71).

Presented: NCUR '11 and Techkriti '13 in Kanpur, India

SOLAR ENERGY TRACKING AND CONTROLS

Solar Decathlon · Sep '08 – Oct '09

Developed control and monitoring network for a solar-powered prototype house.

Presented: 2009 Solar Decathlon in Washington, DC

PROSTHETIC CONTROL

University of New Brunswick, Canada · Sep '05 – May '08

Designed and built a prosthetic hand controlled by force sensors on the patient's residual limb.

Paper: “Using Force Sensors to Effectively Control a Below-Elbow Intelligent Prosthetic Device.”

Publication: “Cancellation of Force Induced Artifacts in Surface EMG Using FSR Measurements” in Proceedings of the 2008 MyoElectric Controls/Powered Prosthetics Symposium.

Awards: Intel Science Talent Search Finalist and JSHS Winner

Presented: '08 Intel Talent Search Finals in Washington, DC