

# George Bacon

1200 Gough St #3E  
San Francisco, CA 94109  
(206) 395-4321  
bacong@gmail.com

I'm an engineer with 15 years experience, skilled in automated machine design and programming. For my Master's degree in Mechanical Engineering at U of Washington, I specialized in control systems. From 2010-2018, I built automated assembly line machinery in the Boeing 787, Airbus A350, and Bombardier G7000 factories. Since 2018, I've been building Internet of Things hardware and software prototypes for Google's Android and Fuchsia operating systems. Portfolio available at [geor9.com](http://geor9.com).

## EXPERIENCE

### **On-site at Google, as an Astreya Partners contractor, Mountain View — *Fuchsia & Android Things, Project Prototyper & IoT Maker***

MARCH 2018 - PRESENT

- Writing and presenting step-by-step hardware repair, modding, and diagnosis guides for Fuchsia team engineers and technicians. I automate technician team tasks using Bash, Javascript (Google App Scripts), Python, and regular expressions. I also automated the diagnosis of hardware and software failures for thousands of customer returns, speeding up diagnosis for the team by a order of magnitude. I programmed scripts to optimize the process of fetching data, running debug tools from the Fuchsia source tree, and automatically populating markdown bug reports.

- Public speaking with industry professionals at Google's conference booths (at Google I/O, Google Cloud Next, Tensorflow Dev Summit, Google Marketing Live). I set up and hosted booths and demos for Android Things, socialized with industry professionals, showed off interactive demonstrations throughout the conferences, and answered questions from the public according to public information playbooks.

- Designed automated machines with servo-motors, cameras, animatronic cables, and on-device machine learning. I also designed a jig for a touchscreen automated test.

- Programmed custom Android Things apps. I taught myself Java / Android Studio as they were needed on the job, and programmed live data visualizations. I integrated multiple Google Cloud Platform features into the Android app for the Google Cloud NEXT conference. I used IoT Core, Pub/Sub, Dataflow, Cloud Storage, BigQuery, and Data Studio. I then collected JSON telemetry of hardware I/O, and Tensorflow machine vision classifications, and displayed statistics on a web dashboard.

- Created datasets, and trained deep learning models to run on Tensorflow Lite on Single Board Computers (Android Things imx7/RPi3)

## SKILLS

Programming (Shell/Bash, Python, etc)

Tech Writing

Rapid Prototyping

Machine Design

CAD

Supplier Management

Project Management

Public Speaking

## INTERESTS

Operating Systems

Open source projects

Deep Learning & A.I.

- Designed injection-molded parts in CAD (Solidworks), and coordinated their mass manufacture.
- Designed and coordinated machine fabrications involving CNC milling, welding, 3D printing, laser-cutting, waterjet, and sheet metal folding.

## **On-site at Boeing, Airbus, and Bombardier, as an Electroimpact Inc contractor, Seattle — *Mechanical Engineer***

MAR 2010 - JAN 2018

- Experienced designing and building automated robotic assembly lines and machines that perform with 0.005 inch accuracy, many designs of which currently assemble the Boeing 777X and Bombardier Global 7000 commercial jets in mass production. My project contracts ranged from \$10M to \$250M, in teams of 10-100 engineers. I took on a wide variety of responsibilities from whiteboard conceiving, CAD animation, and presenting proposed systems to aerospace company buyers, as well as an extensive amount of designing and fabricating functional prototypes in the machine shop and factory floor. I also managed installations, including project scheduling for the team, shipping and lodging logistics overseas, coordinating with suppliers, and overseeing installation and final acceptance tests.
- Thousands of hours of CAD experience, taking design concepts through final manufacture. (CATIA V5 and Solidworks) - Designs range from 10-ton load rated CNC controlled jacks on precision rails to manipulate jet wings, to small tool mechanisms.
- Factory Metrology experience using laser trackers, Spatial Analysis, and custom C# code, to set assembly line machine processes to 0.005" tolerances or better.
- Independently prototyped a working wing assembly process on a small scale, complete with precision actuators, scales, feedback-controlled servomotors, laser tracker, and Siemens logic controller. Verified 3D motion via custom Wolfram simulation code and matrix transform math, and verified 0.005" motion accuracy. Accelerated the project schedule by coordinating controls team software development on the prototype before full-scale machinery was built.
- Designed, storyboarded, presented, and successfully sold 777X wing hinge assembly process to Boeing.
- Created proposal designs and presented them for clients including Embraer, Bombardier, Airbus, and PhantomWorks, converting RFPs into successful bids.
- Directly supervised, trained, and managed teams of engineering interns.

## EDUCATION

### **University of Washington, Seattle** — *Master of Science in Mechanical Engineering*

SEP 2007 - DEC 2008

- Paid research assistantship where I mathematically optimized the carbon fiber layup paths for a CNC assembly robot, using advanced numerical methods to maximize RPM before failure. I numerically optimized the design of a very high speed composite flywheel to enhance energy storage in satellites. I programmed novel nonlinear boundary value problem solvers in MATLAB and mathematica, used gradient descent, and parallelized the computations to dozens of CPUs & GPUs in order to find the optimization.
- Taught several ME230 Kinematics & Dynamics classes per week, and held office hours.
- Controls, Mechatronics, and Robotics graduate-level course track.  
Cumulative GPA: 3.84.
- Taught high school students C++ programming and 3D animation (3D Studio MAX) full time for a summer at DigiPen Institute of Technology