ANTON SEBASTIAN BILBAENO

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EDUCATION

M.S. Computer Science, Portland State University — GPA: 4.0 | 2026
B.S. Electrical & Computer Engineering, Oregon State University — GPA: 3.4 | 2013

EMPLOYMENT

Support – Bold Reuse — Dec 2025 - present
- Support daily operations software.

Product Architect – Bold Reuse — May 2024 - Dec 2025
- Develop software tailored to our daily operations.
- Author a successful grant proposal for Phase 1 of SBIR 2025 to develop a MES for the circular economy.
- Design, model and 3D print an installation-free mechanical system which triggered on the rounded corners of standard dish racks.
- Curate dataset and train an object detection model for counting dish racks through the wash line.

Electrical Engineer – 3DIO — May 2023 - Apr 2026
- Implement a switching DC/DC regulator for powering from phantom voltage.
- Eliminate an expensive analog switch, simplify logic for battery monitoring and power delivery.

Software Engineer – Ion Channel — Nov 2022 - Mar 2023
- Extract metadata from 1.5M repos via GitHub's GraphQL API (Docker, AWS Fargate).
- Transform dependency relationships into a graph (PySpark) to visualize and identify risks (Gephi).

Software Engineer – Software Technology Group — Sep 2021 - Jun 2022
- Develop back & front-end for medical wire spooling machine. (InfluxDB/MongoDB/Node-RED/JavaScript/Vue)
- Integration of laser sensor and PLC for map of ceramic substrate height at nanometer precision. (C#)

Software Engineer – EETech — Nov 2019 - Jul 2021
- Develop electronics simulation web application (SQL/C#/.NET/TypeScript/Vue).
- Take lead on client communication, meeting organization, feature definition & implementation.
- Assist with scoping additional work & project management where I could save us time.

Electrical Engineer – Folktek — Jul 2016 - Nov 2019
- Responsible for mix of designs at low to medium volumes (thousands) from idea to PCBA.
- Design analog logic functions from discrete components and analog ICs.
- Ensure analog audio signal integrity in mixed-signal designs with switching regulators.
- Developed AVR MCU firmware for timer configuration, clock generation, analog sampling, capacitive touch, etc.
- Develop scripts for semi-automated PCB placement and routing, leveraging KiCad's Python API and open-source tools.
- Manage library of symbols, footprints, and schematics via git submodules.

Electrical Engineer – **Novus Labs** — Jul 2013 - Jul 2016
- Primary role: electronics design & in-house prototyping (breadboard, schematic, PCB, SMT assembly, reflow & rework).
- Developed microcontroller firmware for driving motors & solenoids, Bluetooth & Wi-Fi modules, GPIO/UART/Serial/I2C/SPI interfaces.
- Create model of capacitive touch-screen overlay PCB (Python, Eagle CAD) for parametric exploration.
- Electronics and CLI for driving a bunch of relays to perform interactions with devices under test and capture device output.

- Create fully automated test execution and report generation (Python, bash) for benchmarking IMUs.
- We got tasked with helping some VR company doing doing a proof of concept for their zombie game. Mission critical work.

- I scrolled endlessly through datasheets of solenoids and contacted every supplier I could find to get samples to play with. This little toy gun needed to kick as hard as possible, it ended up being more than you expected.
- Then, the airsoft gun and I spent some quality time with a dremel to drop in the solenoid, lithium ion cells, and route wiring.
- Next of course, I threw an Arduino at it. Turns out the Arduino loop isn't fast enough to put out a short enough pulse to whatever solenoid driver IC that I found. Wide (*and somewhat variable)* pulses from the Arduino were making that solenoid heat up. At the time, even though I was supposed to be an electrical engineer, another one of my colleagues ended up making a board for our "one-shot". Later, as I got deeper into the analog electronics world at Folktek, I'd learn that duh, we have all sorts of analog ICs for timing stuff this.

Research Assistant – Oregon State University Jun 2011 - Jun 2012

- Verilog for FPGA to configure buffers and initialize hardware for Ultra-Wideband tool tracking project.

PROJECTS

`trail` Sep 2026 - present

- A version control **authoring** model playing on the idea of "stacks" of changes but adds "types".
- The unit of change is a `trail` which is simply a *segment* of commit history (or, a *stack* of changes).
- A `trail` must match a "pattern". In other words, a `trail` is "typed". Types are configurable.
- The model also includes a multi-boundary history. One boundary preserves an immutable trunk, the other end allows dumping commits onto the tip, and in between is a malleable middle zone.
- The unit of change is not an individual commit, but instead the formation or amendment of a `trail`.

`inistory` (Graduate Project) Jan 2026 - present

- A model for authoring source code history which binds two histories into a single narrative.
- A question-based model for decision history is bound with segments of commit history.
- Within a bound segment, accepted answers must establish full (line-level) code coverage.

Electronics Course 2012

- In partnership with Portland Underground Grad School and financial support from Cinder Staffing,
- Developed curriculum and instruction for an all ages, hands-on, four session electronics course.
- Spent an insane amount of time preparing before each session only to revise my strategy completely each time!

Wireless Hand Sensor (Undergraduate Project) 2012

- Glove with capacitive touch points to activate macros and an inertial measurement unit to move the mouse pointer.

VOLUNTEER

EAGLES Undergraduate Mentor 2023 - present

- Mentor for undergrad computer science student.

CERTIFICATIONS

Azure Developer Associate, Microsoft 2022

AWARDS

Portland Startup Weekend: 1st Place, City Resource Aggregator 2014

- Part of a team which built a location-based city resource aggregator for individuals living on the streets.
- My role was "validation": walking around downtown engaging with people. It seems I am naturally approachable and a strong listener.
- We came in the morning of day two and a hotshot on our team whipped it up on Firebase overnight.
- We learned most people knew about a lot of the resources, but trying to get into a shelter to get a bed was often times impractical. You might hear about an opening but show up to find out it's full.
- From there, we refined the idea to focus on bed reservation. However, we then learned from shelters that this is not so easy. People actually need to show up in person first for a shelter to do their own dilligence to take them in.
- In the final demo, people were awed by the software that was built. But I think what won us the competition is when, after being silent, I snapped forward in response to a question and began talking about everything we learned from people on the street.

Portland Startup Weekend: 1st Place, PCB Quote Automation 2015

- Lead team on building a PCB quote automation system. In our final demo, we were offered funding on the spot.
- At the time I was working as an Electrical Engineer at Cinder Solutions and having to order *a lot* of boards.
- As a naive engineer and trying to be frugal, I'd shop around... but my time usually never outweighed whatever discount I found or negotiated as a first time customer. It was essentially cost prohibitive to spend time comparing prices for a single prototype single quote.