Daniel Correia
30 Lamont Creek Drive
Wasaga Beach, Ontario
L9Z 1J9

Dear Recruiting Manager,

Hi!

Factors which decrease my suitability for the position of *Equipment Technician, Epitaxy*:

- No experience with any semiconductor process-specific chemistry or safety beyond inert gases
- No experience maintaining vacuum cleanliness below 10^{-6} mbar.

However, I have:

- Hands-on experience fabricating and maintaining high-vacuum equipment (turbo and diff. pumps, ion gauges) as a side project,
- A BSc in Science,
- Experience independently managing and conducting work,
- Extensive experience with electronics design, prototyping and repair; instrumentation; software development and simulation; and literature review.

Thanks for your time!

Hi, I'm Daniel.

Science rules!

Daniel Correia | github.com/0xDBFB7 | therobotist+resume@gmail.com | @0xDBFB7 | 1-705-606-8866

Education:
B.Sc. in Science from York University. Graduated January 2021.

SafeSump Inc.

Founder/CTO of four-year project to design and produce a failure-resistant water pump system. Funded by:

- $37,500 Ontario Centres of Excellence grant #26828 (2016-2020)
- $75,000 government contract through Federation of Canadian Municipalities (2018-2020).

Broad overview of skills gained:

- **Electronics**: Custom hardware development from in-house prototyping to volume production; design of ultrasonic and capacitive sensors
- **Software and firmware**: Writing and maintaining a 20k SLOC codebase of Python and embedded C and C++ on STM32 and SAM devices. Version control, frontend and backend programming; Linux administration.
- **Soft skills**: Pair programming, management, conducting presentations, collaboration

Kesti Engineering Ltd.

Occasional board-level repair on Mazak and Haas CNC machines. A successful repair documented here.

Vacuum systems

github.com/0xDBFB7/ionprinter/: A multi-year attempt to explore high-current ion beam lithography.

Spinoff projects:

- a GPU-accelerated Particle-In-Cell program called Nyion
- An inexpensive silicon carbide furnace:

  An attempt to make various high-performance ceramic techniques available to a broader audience. Built on the work of more than 200 scientific papers.

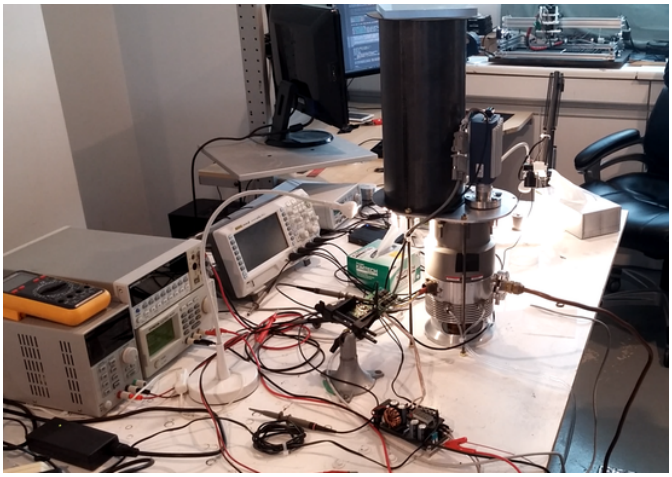
- An inexpensive aftermarket controller for Varian Turbo-V200 series of turbomolecular pumps
- Control software for an Inficon BPG-400 vacuum gauge

Some notes and experiments on the electropermeabilization of viral membranes

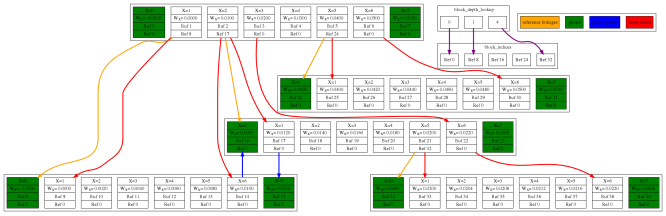
Technical report at doi:10.5281/zenodo.4568507

Personal:
Member of SimCoLab Barrie (now BRiX) hackerspace for 7 years.
Canadian and German citizenship.

1 Gallery

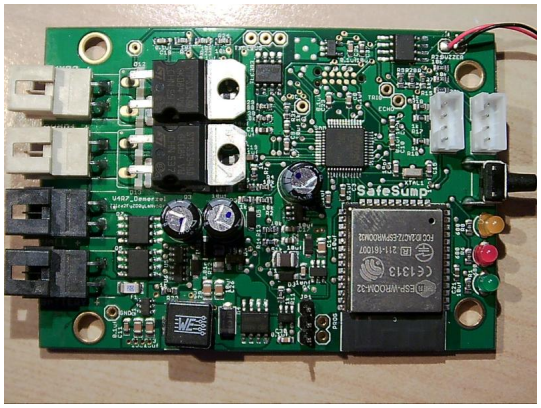


(a)



(b)

A bespoke high-vacuum system. GPU-accelerated multigrid data structure and electrostatics solver for particle-in-cell ion beam simulation.



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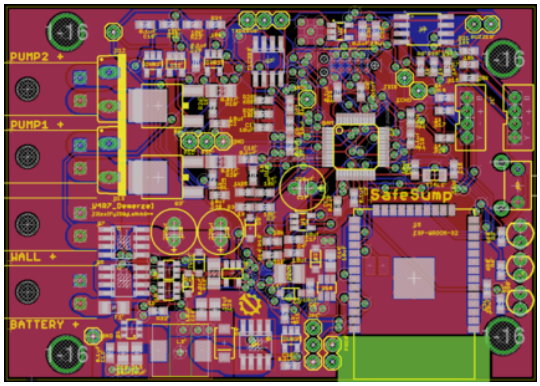
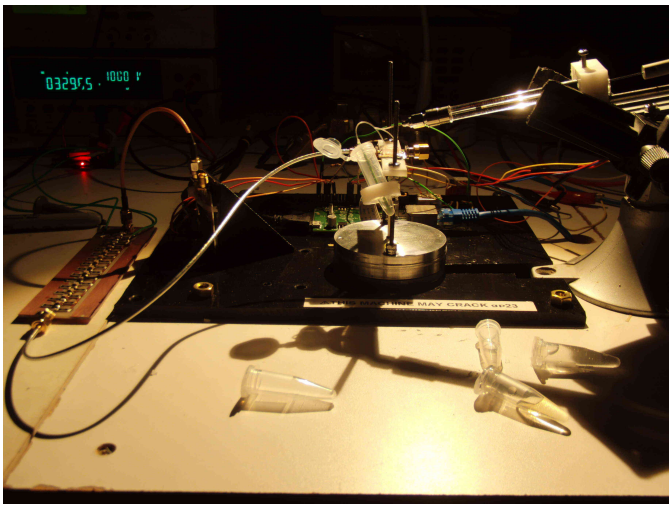


(d)

Redundant controller designed for SafeSump Inc.



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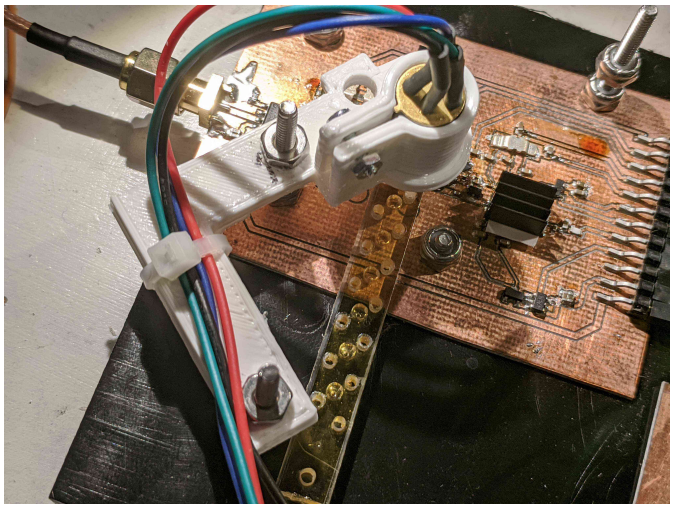

(f)

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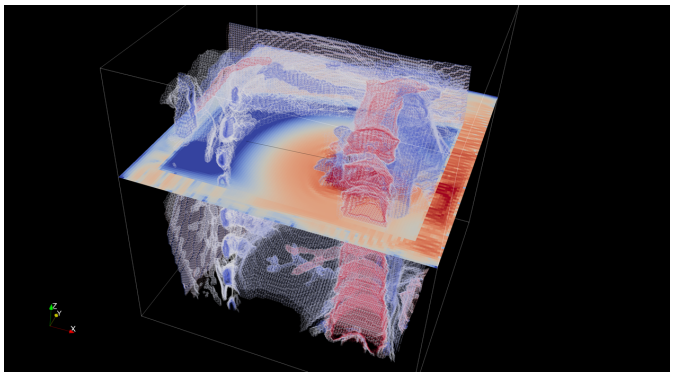

(h)

(a) A sub-nanosecond kilovolt pulse exposure cell (based on an off-the-shelf avalanche transistor pulser design).
(b) A 12 GHz microwave absorption spectrometer.
(c) The very pretty opalescent blue culture caused by E. coli B trying to metabolize lactose in an indicator for the enzyme β-galactosidase.
(d) An FDTD simulation of electromagnetic interaction with tissue.