

# Jeff Alperovich

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Purdue University

M.S. Mechanical Engineering, May 2018

B.S. Mechanical Engineering, Dec. 2015

## Engineering

### Rooski Innovations, LLC

Owner/Founder

May 2015–Present

- ME2Go: Mechanical Engineering Pocket Reference. This educational app contains formulas and derivations crucial to students and professionals. Over 4000 downloads in 8 months. Adapting the app to be used as a teaching tool in classrooms. Releasing Android version soon.
- Researched customer needs to understand product desires in multiple markets: owners of the Acura NSX, smart-phone users and more
- Performed cost analysis on 20 potential products to determine product pricing for business growth and consumer satisfaction
- Market and sell products through internet and interpersonal mediums, featuring individual consumer design customization (over 200 sold)

### Kaleidoscope

Design Engineer Intern

May 2017–Present

- Developed and programmed (Arduino) a custom biomedical device to detect and run active cooling modules of a wearable array. Each module variably cools utilizing TECs, fans, LEDs, and thermistors.
- Designed (Solidworks) and prototyped a Nitinol wire decoupling system for a wearable feedback device to maintain a constant seal force to ensure consistent readings independent of user comfort preferences
- Spec'd components, programmed devices (Arduino), and created circuitry to monitor and log respiration, heart rate, temperature, and movement to a memory card for ease of transfer and analysis
- Built and programmed (LabVIEW) 8 test fixtures to actuate a consumer electronics product that moves a screen weightlessly. Validated systems include software and hardware thru 1,000,000 cycles

## Additional Leadership & Expertise

### International Intercollegiate evGrand Prix

President, Mechanical Engineering Lead

Oct. 2012–May 2014

- Contacted and managed the participation of 22 teams and several contractors to ensure successful event operation at The IMS
- Aided in the procurement of 600 new Boston-Power battery blocks. Collaborated with Boston-Power battery engineers to test cell temperatures for varying discharge rates to determine requisite cooling
- Considering test data, designed and built 7 aluminum battery enclosures that powered all Purdue karts in a 3 week span of time using Autodesk Inventor as a CAD tool and mills

### Languages

- Native Russian speaker taught by Soviet Russian immigrants
- Learned to speak conversational German through coursework

### C-Design Lab, Purdue University

Graduate Research/Teaching Assistant

May 2015–Present

- 5 major papers published in ASEE, JSET, CHI, IDETC, and ASME Journal of Mechanical Design
- Published results on the effects of hands on design and prototyping activities on understanding and learning through changes in student design language, methodologies, and self-efficacy (ASEE, JSET)
- Develop and evaluate novel prototyping methods mixing human-computer interactions with advanced design techniques (CHI, IDETC)
- Instruct 50 second year students per semester through the mechanical engineering design, innovation, and entrepreneurship processes
- Taught design and CAD (Creo) skills to 120 fourth year students

### Fiat Chrysler Automobiles, Auburn Hills, MI

Product Development Intern

May 2016–Aug. 2016

- Oversaw projects and union mechanics in the Body Hardware Lab. This oversight included routine testing as well as daily testing
- Designed fixtures and accompanying test procedures for core development testing of new products designed for future vehicles, working alongside union mechanics to fabricate and construct
- Communicated with suppliers for the purchase of new test equipment, raw materials, and to perform testing
- Developed testing procedures to validate product performance and correlate data to CAE models (DFSS). Initial correlation had 30% error, pushing CAE to refine models
- Updated and modernized 15 lab work and testing procedures, improving lab efficiency through WCM techniques

### Purdue Racquetball Club

Tournament Director, Club President, Advisor

Jan. 2013–Present

- Built sport interest at Purdue, reestablishing the club within the Club Sports competitive team organization at Purdue
- Coordinated with 10 universities and over 250 players across the Midwest to host tournaments, including the State Championships, raising over \$10,000 in 2 years to cover all tournament and travel costs

### Skills

- Proficient in the use of multiple CAD packages: Solidworks, Autodesk Inventor, Catia, Creo Parametric, AutoCAD
- Designed and built electromechanical systems (Arduino platforms)
- Programming experience in Python, C, LabVIEW, and MATLAB
- Completed projects and home renovations using manual tools and machinery, working with various woods and metals