

# Andrew Shepherd

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My aspiration in life is to help others through kindness, compassion, as well as research and development of medical technology – in this way I dream to change the world.

## HIGHLIGHTS

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**Medical Device Design:** Developed device prototypes using CAD, performed formal testing following ISO 13485 regulations, wrote protocols and engineering reports for FDA, developed software features to guide surgeons

**Rhodes Scholarship 2020 Nominee:** selected to represent the University of Guelph

**President's Scholar:** \$40 000 scholarship awarded for academic excellence and leadership

**Entrepreneurship/VC:** Guelph Hub Incubator Member, Venture Capital Investment Associate

**International Athlete:** Selected to represent Canada, National Champion, trained 25+ h/week

**BACHELOR OF BIOMEDICAL ENGINEERING CO-OP - OVERALL AVERAGE 90%+      SEPTEMBER 2016 - PRESENT**

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### University of Guelph President's Scholar

- Awarded for leadership and academic excellence
- Mentored engineering scholars to help them attain the award's mandatory 80% average
- Interviewed and selected incoming leaders on the President's Scholarship Selection Committee

### Association of Professional Engineers of Ontario Award

- Recognized for outstanding contributions to the engineering profession and community

### Gordon F. Morton Award

- Recognized for best combining athletics, academics, extra-curricular activities and friendships

## MEDICAL DEVICE EXPERIENCE - KITCHENER, ONTARIO

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### Vena Medical – Mechanical Engineer

MAY 2020 - AUGUST 2020

- Redesigned optical scope of the world's smallest camera capable of going inside veins and arteries to help physicians treat strokes
- Created Failure Modes and Effects Analysis (FMEA) for design, process and use of optical microcatheter
- Represented Vena Medical at a press conference with the Premier of Ontario

### Intellijoint – Medical Device Development

JANUARY 2019 - APRIL 2019

- Designed, 3D printed and presented an accurate model of the surgical navigation system
- Wrote 6 formal engineering reports based on surgeon feedback to communicate to the FDA and investors
- Developed 4 device prototypes using CAD, wrote 2 protocols, and performed 12 formal tests for verification and validation of new products for FDA submissions

### Intellijoint – Software Development

MAY 2019 - AUGUST 2019

- Developed features for an application to calculate real-time measurements during surgeries to increase accuracy
- Led and presented projects to develop an auxiliary screen and integrate IEC 60601 medical electrical equipment
- Developed accurate 3D models, requested by the FDA, from CT scans using 3D Slicer to prove system accuracy

## ENTREPRENEUR/VC EXPERIENCE - UNIVERSITY OF GUELPH

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### Front Row Ventures Representative

MARCH 2020 - SEPTEMBER 2020

- University of Guelph's representative for the student-run venture capital program
- Analyzed student-run startups and made decisions on which to invest in, based on the team, market, traction and execution

### Guelph Hub Incubator

JANUARY 2020 - MAY 2020

- Co-founded a startup and worked with the incubator to develop a strong business model that can be rigorously tested and intelligently scaled

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## RESEARCH EXPERIENCE - UNIVERSITY OF GUELPH

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### Neurovascular Research Assistant

MAY 2018 - AUGUST 2018

- Developed software programs in Excel (VBA) to analyze blood flow and blood pressure
- Presented a poster at College of Biological Sciences Symposium
- Taught frequency domain analysis and developed new methods to analyze baroreflex sensitivity

### Cardiovascular Research Assistant

MAY 2017 - AUGUST 2017

- Developed software programs in MATLAB to determine pulse wave velocity
- Designed, tested, and compared mechanical properties of model arteries to arteries *ex vivo*

## PUBLICATIONS

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Effects of dynamic arm and leg exercise on muscle sympathetic nerve activity and vascular conductance in the inactive leg

- (2019). J Appl Physiol 127(2), 464-472.

Arterial baroreflex regulation of muscle sympathetic nerve activity at rest and during stress

- (2020). J Physiol 597(18), 4729-4741.

Arterial baroreflex regulation of muscle sympathetic single-unit activity in men: influence of resting blood pressure

- (2020). Am J Physiol Heart Circ Physiol 318(4), H937-H946.

Sympathetic arterial baroreflex hysteresis in humans: different patterns during low- and high-pressure levels

- (2020). Am J Physiol Heart Circ Physiol 319(4), H787-H792.

## VARSITY TRACK AND FIELD AND CROSS-COUNTRY TEAMS - UNIVERSITY OF GUELPH

2016 - 2019

### 3X National Champions

- Trained 25+ hours a week, and competed across North America

### International Team

- Chosen to represent Canada in the World Championships for Cross Country

### Assistant Captain

- Led strategy and support sessions to help athletes who were struggling to balance academics

### 3X Varsity Academic All Canadian

- Awarded to student-athletes who achieve an academic standing of 80% or better

## SPECIAL EVENTS & CHARITIES COORDINATOR - UNIVERSITY OF GUELPH ENGINEERING SOCIETY

2019 - 2020

**Terry Fox Run:** Organized the school's first Run, surpassing the \$1M in fundraising with the city

**Local Women's Shelter:** Fundraised by teeter-tottering on a telephone pole for 24 hours straight

**Fundraiser for Orphans in Peru:** Funded surgery for Estrella, 12, who could not move her lower limbs, and a keyboard for Juan, 12, who is partially blind but loves music

**Relay for Life:** Led the school's team, relaying all night in support of the fight against cancer

**Blood Drive:** Promoted and organized the school's blood donor drives

## ENGINEERING SOCIETY REPRESENTATIVE - UNIVERSITY OF GUELPH

MAY 2019 - MAY 2020

### Ontario Engineering Competition Supervisor

- Assisted and supervised sponsors at the event, where the brightest student minds in engineering from across Ontario compete against each other across 8 competitions

### Orientation Week Co-Organizer

- Organized and led dozens of activities to excite and welcome incoming engineering students

### École Polytechnique Memorial Volunteer

- Helped to organize a memorial to remember those murdered for being women in engineering

### Professional Development Conference Vice President

- Organized a conference for the school to bring insight from professionals, networking opportunities and academic growth for students