JESSICA BO (YI FEI BO)

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EDUCATION

2020 – 2022 **ETH Zurich | *Zurich, Switzerland***
Incoming MASc Mechanical Engineering, focus in Robotics and Computer Vision

2014 – 2020 **University of British Columbia | *Vancouver, Canada***
BASc Mechanical Engineering, specialization in Biomedical Engineering
GPA: 3.80/4.0 | Upper Year GPA: 3.92/4.0

2012 – 2014 **University Transition Program | *Vancouver, Canada***
Competitive and accelerated program for early entrance to university.

RESEARCH EXPERIENCE

Winter 2019 – present **Bachelor Thesis in Computer Vision for Robotics**
Collaborative Advanced Robotics and Intelligent Systems Laboratory, UBC
Supervisor: Machiel Van der Loos
Developed a wheelchair detection and orientation estimation algorithm using ensemble classification and deep learning techniques on 2D laser scanner data. Proposed a real-time wheelchair state estimation pipeline for mobile robots.

Fall 2018 **Autonomous Vehicle Research & Development Student**
Blackberry QNX, Ottawa, Canada
Supervisor: Gordon Bell
Developed a real-time autonomous vehicle perception algorithm for detecting object candidates and free space with Lidar data. Created 2D visualization tools by casting 3D spatial coordinates onto a 2D plane using projective geometry.

Spring 2018 **Volunteer Research Assistant**
Laboratory for Orthopaedic Technology, ETH Zurich
Supervisor: Stephen Ferguson
Assisted in clinical trials and 2D/3D registration of fluoroscopy images in research investigating the hip kinematics of total hip replacement patients.

Summer 2017 **Summer Research Student**
CERTEC, Department of Design Sciences, Lund University
Supervisor: Héctor Caltenco
Designed a thermoplastic-based hand rehabilitation device for stroke survivors as a part of the ActivABLES Nordic research project. Developed a sensor-processing algorithm to interpret hand poses and provide stimulating visual feedback.

Fall 2016 **Data Analyst for Electronic Medical Records Study**
International Children's Advisory Network
Supervisor: Meghan Gwara
Used one-way ANOVA statistical tests to analyze Likert Scale responses on benefits and barriers of electronic medical record (EMR) systems.

CONFERENCE PROCEEDINGS

[1st Place Presentation] **Bo, J.** (2020). Detection of Wheelchairs Using Laser Scanning Sensors for Mobile Robotics. *Multidisciplinary Undergraduates Research Conference 2020, UBC*, 22 – 30 April.

Gwara, M., Tsang, V. L., Thompson, C. A., Smith, S., **Bo, J**., Fletcher, S., Janusz, N., Chew, S. Y., Janusz, M., Thompson, C. K., Bertrand, M., Woods, H., Thompson, C. (2018). Use of Centralized Electronic Medical Records System in Paediatric Care. *American Academy of Pediatrics 2017, Chicago, Illinois*, 16 – 19 September.

CONFERENCES & EVENTS

2020	**Multidisciplinary Undergraduate Research Conference**, Online – *Presenter*
2019, 2020	**IMechE Speak Out for Engineering**, Vancouver, BC – *Presenter*
2017	**Multidisciplinary Undergraduate Research Conference**, Vancouver, BC – *Poster*
2017	**International Conference on Engineering Design**, Vancouver, BC – *Exhibitor*
2016	**International Paediatrics Association Conference**, Vancouver, BC – *Exhibitor*
2015	**Paediatric Academic Society Conference**, Vancouver, BC – *Exhibitor*
2015 – 2018	**International Children's Advisory Network Summit**, various locations worldwide (Washington DC, Barcelona, Orlando, Edinburgh) – *Organizer, Attendee*

INDIVIDUAL AWARDS

2020	**Oral Presentation** (1st) – *Multidisciplinary Undergraduate Research Conference*
2020	**Canada Graduate Scholarships-Master's** ($17,500, declined) – *NSERC Canada*
2020	**DFP Graduate Entrance Grant** ($5000, declined) – *UBC Designing for People*
2020	**Speak Out for Engineering, Americas** (1st) – *Institution of Mechanical Engineers*
2019	**Women in Technology Scholarship** ($10,000) – *IKB BC Scholarship Society*
2019	**Speak Out for Engineering, Vancouver** (1st) – *Institution of Mechanical Engineers*
2017	**Coordinated International Experience Award** ($1000) – *UBC Applied Science*
2017	**Go Global Research Abroad Programs Award** ($2000) – *UBC Student Services*
2016	**NSERC Experience Award** ($4500) – *NSERC Canada*
2014 – 2018	**UBC Dean's Honour List** – *UBC Applied Science*
2014	**Chancellor's Scholar Award –** *University of British Columbia*
2014	**Provincial Exam Scholarship** ($1000) – *Government of British Columbia*

INDUSTRY EXPERIENCE

Summer 2020	**Software Engineer Intern | *Coursera*** *In progress*: Implementing backend website features to improve user experience and business goals for the payments team.
Summer 2019	**Software Development Engineer Intern | *Amazon*** Designed and implemented the backend of a Java web service that processes and registers Amazon membership events in real-time, using AWS cloud computing services to guarantee event polling and delivery.
Summer – Fall 2016	**Mechanical Design Specialist | *Mazdis Inc.*** Generated mechanical and structural CAD designs for automated bicycle parking systems, then conducting FEM analysis to optimize the weight-to-strength ratio.

TECHNICAL SKILLS

Software	Python, Java, C, Scala, MATLAB, Linux, AWS, LaTeX, ROS, Tensorflow, Scikit-learn
Mechanical	SolidWorks, ANSYS, Machining, Prototyping, Mechanical Design
Electrical	Soldering, Oscilloscope, Instrumentation, Sensors, Arduino, IMU, LiDAR

TECHNICAL PROJECTS

Fall 2019 – present
Attentiv Catheter for IV Infiltrations | *New Venture Design, UBC*
Conducted extensive validation and research to identify the problem of IV infiltration. Conceptualized patentable design of instrumented catheter for infiltration detection and developed business strategies for commercialization.

Awards *AMS Entrepreneurship Hub RBC Get Seeded Award ($500), New Ventures BC Semi-Finalist, Innovation on Board Start-Up Competition 2nd Place ($3000 + UBC Incubator), New Venture Design Best Technical Project ($875) and Industry Award ($600) Microsoft Discover AI – Healthcare Winner (~$6000 + Microsoft Incubator)*

Spring 2019 – present
H4PTIC Sensory Prosthesis | *Hatching Health 2019*
Designed a novel sensory-feedback device for prosthetic users that transforms pressures into vibrotactile feedback, using a validated mechanism that leverages neuroplasticity and somatosensory cortex remapping in amputees.

Awards *UBC Applied Science Best Technical Innovation ($1500), Hatching Health 2nd Place*

Spring 2018
HoloLens Point Cloud Registration | *3D Vision, ETH Zurich*
Adapted the Guaranteed Outlier Removal point cloud registration algorithm with Iterative Closest Point algorithm to reduce alignment errors using MATLAB.

Winter 2018
MyoHome | *nwHacks 2018*
Innovated a gestured-controlled smart home prototype using EMG signals captured by the Myo Armband and the Arduino microcontroller.

2017 – 2018
ENABLE Soft Exoskeleton | *UBC Biomedical Engineering Student Team*
Conducted literature review and interviewed researchers to aid in the engineering design of an EMG-controlled soft upper-limb exoskeleton.

2016 – 2019
FraXure | *UBC Biomedical Engineering Student Team*
Prototyped a pneumatic femur fracture treatment device for low-resource settings and performed testing to ensure that device meets safety requirements.

Awards *ICED17 Design Fair 2nd Place, Medical Device Design Center Excellence Awards Finalist, Rice University 360° Global Health Design Competition Finalist*

2014 – 2015
Thunderbird CubeSat | *UBC Orbit Satellite Design Team*
Created SolidWorks CAD designs for a weight-saving satellite structural chassis and programmed a 3D simulation of the satellite's orbit using MATLAB.

LEADERSHIP EXPERIENCE

2014 – 2019
Conference Committee Chair | *International Children's Advisory Network*
Chaired regular planning meetings for annual iCAN Summits on patient advocacy. Reviewed European Medicine Agency's pediatrics clinical research policies.

2013 – 2018
Kidscan Youth Advisor & Mentor | *BC Children's Hospital Research Institute*
Advised research teams on promoting youth involvement in pediatrics research, helping research projects gain ethics approval for clinical trials.